The Builder.

No. CCCXLVII.

SATURDAY, SEPTEMBER 29, 1849.

SOME of our correspondents express surprise that we have not given a decided opinion on the question pending between the Architect of the new Houses of Parliament and the Government, as to the amount of remuneration which he should receive for his past services, "as the general question of payment to architects so materially affects the whole profession." We need not tell our old readers, that on the general question of architects' remuneration we have repeatedly spoken, and that in our volumes will be found a considerable amount of information on the subject. We have, again and again, called the attention of the profession to the present unsettled state in which the question rests, and have shown the evils of the 5 per cent. system, as well as its advantages, and the position of architects who so make their charge, when they are obliged to go into a court of law to recover payment for their services. It seems clear that the amount of the commission, *as a commission, cannot be recovered*,—that simply proving to a jury that 5 per cent. is the customary charge will not suffice to insure a verdict. Evidence must be given that the sum claimed is a fair compensation for the skill and labour employed in the particular case.

In the case of Mair against Ward, it will be remembered, the plaintiff charged 5 per cent. commission on the amount expended, his travelling expenses, and two guineas a-day for the time *occupied in travelling*. The witnesses proved that the principle on which he claimed payment was universally acted on by the profession, *and* that the work done was worth the money. The jury gave the plaintiff all he went for. A new trial was demanded, on the ground that, as the "particular" claimed the money entirely in the character of a per-centage, and as, according to the opinion of Lord Denman, the claim could not be allowed upon that ground, the jury, not having the power to go beyond the particular, ought to have found a verdict for the defendant. The new trial, however, was refused; the court, after deliberation, decided, that although the jury rejected the claim as grounded upon the commission, they were justified in awarding the money as a compensation for labour.*

Returning to Mr. Barry's dispute with the Government, however, and which, we may mention, still remains unsettled, the general question,—the propriety or otherwise of charging 5 per cent. on the amount expended, is not at issue. A statement of the architect's case will be found at p. 341 of our present volume, and it will be there seen that he claims

5 per cent. commission on 841,630*l.* 17s. 11d.	£42,081
And for special or extraneous services during a period of ten years.....	5,256
Making in the whole.....	£47,337

To this the commissioners reply, not that a commission is an improper mode of charging, or that the sum named is more than the skill and labour employed are worth,—but that the architect had, by *special agreement*, abandoned the accustomed remuneration, and had accepted the fixed sum of 25,000*l.* for "the superintendence, direction, and completion of the proposed edifice," for the express purpose of avoiding what was pointed out to him as being considered by Parliament an objectionable mode of paying architects.

If an architect make an agreement, he is, of course, bound to abide by it. It might even occur that an architect would agree to do certain work for a certain sum, for the purpose of obtaining an employment for himself at the expense of another architect, who might refuse to enter into such an agreement, and it would, of course, be manifestly unjust if he were able afterwards to get rid of the agreement, and claim the usual amount of remuneration.

The question with Mr. Barry turns wholly on the agreement, but even in this light the profession generally are much interested in it,—both as to the effect which such an agreement would have in lessening professional charges generally, and as to the justice of the course pursued by the commissioners to obtain it. When the architects of the United Kingdom submitted their designs for the intended Palace of Parliament in competition, it was, of course, with the expectation that the successful competitor would be employed, and paid as other Government architects always have been paid. Mr. Barry asserts that he was appointed unconditionally to carry his design into effect, at the commencement of 1837, and expected his "remuneration would be of the customary amount," and that he was not informed that the Commissioners of Woods considered 25,000*l.* a fair and reasonable remuneration for what he was about to do, till the 1st of March, 1849, when he had made such costly arrangements to carry on the work, that he could not have relinquished the employment without a considerable sacrifice. He therefore acceded, under a protest "as to the inadequacy of the amount proposed, and with an intimation that he should offer proof of its inadequacy when the building was in such an advanced state as to allow of a competent judgment being formed on the subject." Still, he did accede, and on this the Government rest their objection. It may be said that he did wrong to accede, and there is force in the remark; but the circumstances and the temptation must be duly considered against it.

Apart from this, that Mr. Barry is fully entitled to the usual commission of 5 per cent. none will deny who know the nature of the work, and are competent to judge. Sir Jeffrey Wyatville received 5 per cent. on the amount expended at Windsor Castle, and was *also paid for measuring* the works; Mr. Nash received 5 per cent. for Buckingham Palace; and the superintendence of piles of warehouses and docks are paid for after the same rate.

It must be borne in mind by those who are to legislate on this matter, that the building which Mr. Barry was to see carried out for 25,000*l.* was estimated at 707,000*l.*, and that of the 842,000*l.*, using round numbers, on which the commission is now claimed, Mr. Barry says 370,000*l.* are for works which form *no part* of the original design and estimates. If circumstances led to, or justified a larger outlay than was at first intended,—an outlay ordered or assented to by the Government, and increased by popular approval,—it would be unreasonable to expect that the architect's payment is to remain the same. Some, it is true, plead this increased expenditure as the fault of the architect, and far from allowing him any commission upon it, would make it a reason for lessening the sum agreed to be paid. That this is the fact has yet to be proved, Mr. Barry denying it vigorously.

The charge against architects for exceeding their estimates is as old as Augustus, and has been repeated in every succeeding century. Thus, John Evelyn, in a dedication to Wren, says:—"I have known some excellent persons abused, who, trusting to the computations of either dishonest or unskilful artists, have been forced to desist, sit down by the loss, and submit to the reproach,—*This man began to build and was not able to finish*. But so, it seems, would not the Greeks suffer themselves to be overreached, when those great builders, the Ephesians (who knew sufficiently what mischief it was to the public, as well as private men) ordained it for a law, that if a clerk undertook a work, and spent more than by his calculation it would amount to, he should be obliged to make it good out of his own estate; whilst they most liberally and honourably rewarded him, if either he came within what was first designed or did not much exceed it. This was esteemed so reasonable (upon consideration how many noble persons had been undone, and magnificent structures left imperfect) that Vitruvius, writing to the great Augustus concerning this subject, wishes the same law were in force at Rome also."

An architect who gives a false estimate to his employer will find no defender in us, but before condemning we must know that it really *is* false, and, moreover, that he was paid for making a correct one. Our views on this head we have already stated, but we shall take an early opportunity to recur to them, as we shall to the general question of architects' remuneration. The present position of the matter is most unsatisfactory and hurtful both to architecture and its professors. We are not wedded to the per centage system, we have shown many objections against it, one not the least of which is that it gives apparent ground for the calumny, that architects bring upon their employers ruinous expenses, adding useless ornaments and preposterous decorations, for the sake of increasing their own charges,—that they take a hundred pounds out of their employer's pockets that they may put five pounds into their own!

A committee of the Institute, it will be remembered, inquired into the custom of payment, and drew up a report upon it for the use of the members on special application. This, however, was an incomplete and crude document, and an unsatisfactory arrangement, and we urged that they should go more fully into the inquiry, and publish a clear and comprehensive report on it for the information of the public, and the guidance of the profession.

We are glad to be informed that they are now about to resume the question, and we shall look anxiously for the result.

* See vol. iii., p. 695, and vol. iv., p. 61. Also vol. vi., p. 301. And for a paper on "The Rights and Responsibilities of Architects," p. 350 of our present volume.

THE PARIS ARCHITECTURAL EXHIBITION.—The show made by the architects in the present exhibition of works of modern art in Paris is rather better than it was in 1848. "Workmen's Towns;" Hospitals for "Civil Invalids," a subject referred to four architects by General Cavaignac, when at the head of the Government; the everlasting completion of the Louvre, for which more than fifty architects have made designs since 1799; and new markets—are the principal subjects treated. The gem of the exhibition, according to Mons. A. Lance, in the *Siècle*, is a work by Mons. Jules Bouchet, entitled *Essais de Restaurations*, showing, by eight drawings, Pompeii restored.

TIDAL OBSERVATIONS IN THE RIVER THAMES.

DRAINAGE OF THE METROPOLIS.

A series of tidal observations were made in the River Thames between the 19th June and the 19th July of the present year, in connection with the metropolitan survey. Tidal observations of the kind, taken simultaneously at different stations, and referable to the same datum, are at any time interesting, but at the present time, when the general drainage of the metropolis occupies so large a share of public attention, and when the question of continuing or discontinuing the river as the main sewer in that drainage, must necessarily be discussed in its various bearings, they become of more than ordinary professional interest.

The stations or gauges at which the observations were taken were three in number; one in Deptford-reach, another at London-bridge, and the third at Battersea-pier, near the Red-house. The observations were registered every 10 minutes from 6 a.m. to 6 p.m., and the correct time of each observation was determined by means of a marine chronometer at each station, set to Greenwich mean time.

The zeros of the gauges were connected by careful levelling; hence their relative level as well as that of the surface of the water in the river at all states of the tide was easily ascertainable.

It was found that there was a considerable difference in the time of the high and low water at the three stations. The greatest interval of time between the high water being—Deptford, before London-bridge, 20 minutes, and before Battersea, 45 minutes. The least interval of time of the high water was, Deptford, before London-bridge, 5 minutes, and before Battersea, 30 minutes; and the mean interval of time during the month's observations was, Deptford before London-bridge, 12 minutes, and before Battersea, 36 minutes.

The greatest interval of time between the low water at the three stations was, Deptford, before London-bridge, 55 minutes, and before Battersea, 90 minutes; the least interval of time was, Deptford, before London-bridge, 13 minutes, and before Battersea, 63 minutes; and the mean interval of time during the month's observations, was Deptford before London-bridge, 24 minutes, and before Battersea, 73 minutes. The interesting fact is deduced from this variation of time of high and low water, that the tide is, when near the time of high water, flowing for a period of 30 to 45 minutes in opposite directions, that is to say, at Battersea it is flowing up the river at the same time that it is flowing down the river at Deptford, the intermediate points being affected to a corresponding extent, according to their relative position. The counter currents about the time of low water, continue for a longer period, the current of the ebb stream at Battersea flowing down the river for an hour or an hour and a half after the flood stream has set up the river at Deptford. Hence it appears that about the time of high water, there is a counter tidal current within the limits of dense population, of half an hour or three quarters of an hour in duration; but inasmuch as these opposite currents are separating, or receding from each other, that is, the part highest up the river flowing still higher, while at the places situated lower down the river, the water is flowing towards the sea, it may be supposed that the agitation in the mass of water produced thereby is inconsiderable. In the case of the low water period, however, the matter is very different. Here it will be observed, while the water is at or near its lowest diurnal level, and consequently when all the sewers of the metropolis discharge their contents upon the diminished stream, or upon the half-dried mud which the recession of the tide has left bare, while at the same time a hundred river steamers, and vessels of all kinds and dimensions, are agitating the river, and stirring up the mud from the very bottom of its bed, two opposing currents of the tide are rushing towards each other from Battersea to Deptford, which meet about midway, or somewhere between London and Waterloo-bridges.

The relative level of the high and low water at the different parts of the river, as well as the relative level of the several parts at the same instant of time, during the entire ebb and flow of the tide throughout its whole age, must obviously enter largely into the discussion of any general scheme of sewerage which contemplates using the Thames as the main artery of its system. The following results bear on this point:—

The mean difference of level of the high-water at the three stations was, Deptford lower than London-bridge, 0·25 feet; and higher than Battersea, 1·03 feet. The main difference of the level of the low-water at the three stations was, Deptford lower than London-bridge, 0·59 feet; and lower than Battersea, 1·98 feet.

The greatest range of tide during the month was at	Deptford	21·35 feet.
	London-br.	20·65 ,,
	Battersea	16·70 ,,
The least range of tide during ditto.....	Deptford	14·76 ,,
	London-br.	14·50 ,,
	Battersea	12·70 ,,
The mean range of tide during ditto.....	Deptford	17·91 ,,
	London-br.	17·51 ,,
	Battersea	14·91 ,,
Giving a mean range of tide for the river between Deptford and Battersea of		16·78 ,,

This affords fair data for ascertaining the approximate volume of water which ebbs and flows twice a-day, and, consequently, of the quantity to be contaminated by each individual or family of the entire population. The area of the river from Deptford Dockyard to Battersea Pier is about 1,360 acres; and we have in each acre, according to the average range of tide here stated, 730,937 cubic feet, or 4,554,000 gallons, giving a total quantity in the whole area of 6,193,440,000 gallons for a single average tide, or 12,386,880,000 gallons during each twenty-four hours. Now, allowing that the population contaminating this mass of water is 2,000,000, there will be for each individual an average quantity of 6,193 gallons, or upwards of 30,000 gallons for each average family of five persons.

Different minds will draw very different inferences from these matters of fact. Some will say that, with this quantity of water for each individual, or family, it would be utterly impossible to render the whole mass so dangerously polluted as it is stated to be; whilst another class, from their assumed knowledge of numerous collateral and constantly recurring sources of contamination, will probably arrive at a totally opposite conclusion. One thing, however, may be stated as certain—namely, that the whole question cannot be fairly discussed by taking an isolated view of the facts, or with an imperfect knowledge of them.

Great diversity of opinion has been expressed with respect to the quantity of contaminating matter which passes into the Thames from the sewers of the metropolis, and the proportion which it bears to the quantity of water in the river. Mr. Chadwick, at a recent meeting of the Commissioners of Sewers, stated this proportion to be as 1 to 10,000; this, however, can only be taken as a conjecture. The following considerations will aid in forming as correct an opinion upon the subject as the imperfectly known facts will warrant.

The area of the metropolitan district drained by the part of the river Thames here under consideration, is about 24,000 acres, or nearly 40 square miles. The annual quantity of rain falling in the metropolis is about 21 inches, which gives for this area of drainage about 11,397,300,000 gallons. Of this quantity, one-half probably passes away by evaporation, and the other half, or a daily average of about 15,600,000 gallons, passes through the sewers into the Thames.

Another source of supply is from the water pipes. The quantity of water supplied daily by the several water companies to the metropolis in 1833 was stated, before a Parliamentary Committee to be 35,000,000 gallons (a quantity scarcely credible). To this may probably be added, on account of increase of population, &c., 20 per cent., or 7,000,000 gallons, giving a total of 42,000,000 gallons, or 21 gallons daily for each individual, at the present time. Assuming that one-fourth of this quantity passes into the waste pipes, and thence into the sewers, we have 10,500,000 gallons per diem passing into the river from this source, which, added to the average daily quantity of 15,600,000 derived from rain, gives a total daily average of 26,100,000 gallons. Or, adding to this that which is supplied through the natural channels of streams derived from sources exterior to the area of drainage, the average daily quantity may be set down at 30,000,000 gallons supplied from all sources for the cleansing of the sewers. It is, however, obvious that as the portion derived from rain is fluctuating in its supply, although the daily average throughout the year may be 30,000,000 gallons, the actual daily supply for sewer-cleansing purposes in dry weather may be as low as half that quantity, while in rainy seasons the daily supply may rise to 45,000,000. In the former case there would be about a proportion of one gallon of polluted sewer water to 800 gallons of tidal water, and in the latter case it would be as one gallon to 267 gallons. The purity of the water in the river would, however, be as much deteriorated in the one case as in the other, as an equal quantity of soil must necessarily be cleansed from the sewers in both cases; the only difference would be, that with the more copious supply of water the soil would be in a more diluted shape, but not on that account in greater quantity.

It may be fairly expected that in some of the numerous plans of sewerage to be shortly laid before the Commissioners of Sewers, this important subject will be fully discussed. To do so, however, the fact must not be lost sight of, that as the tidal wave is to a certain extent oscillating in estuaries, or rivers like the Thames, it cannot be supposed that the whole of the semi-diurnal additions of drainage impurities can pass completely away with each tide; we know, indeed, that they do not; and it becomes a matter of vital importance to ascertain the *progressive* amount of these accumulating impurities. It is as absurd to pretend that the water of the Thames is uncontaminated, while it is used as the main sewer, as to expect the purity of a mountain stream in a river on whose banks 2,000,000 of the most restlessly active people in the world exist.

IMPROVEMENT OF WROUGHT-IRON WATER-PIPES.

In your number of the 11th of August a paragraph was inserted stating that Messrs. Fox and Henderson had purchased the license for the manufacture in England of the wrought-iron pipes, upon the patent of M. Chameroy. This paragraph escaped my notice until very recently, but as it is always better late than never, perhaps you will allow me through your columns, to call the attention of these gentlemen, and of the profession, to some defects in the use of these pipes. I do this, because the defects are susceptible of being remedied; and the parties would render a real service to all interested in drainage and water-works, were they to succeed in the attempt.

Firstly. The tubes, or pipes (as I have seen them employed in Paris, and in other French towns), are not made sufficiently strong to resist the pressure from without. The weight of the earth above them, combined as its action often is with a settlement below (for most water pipes are laid in made ground), forms indents which diminish the volume of water delivered. But as the indent is not always accompanied by a leakage, it is very difficult and expensive to ascertain where the obstruction occurs. I have known nearly a mile of pipe laid bare to find the cause of the diminished delivery. In fact, elasticity is not to be desired in a water pipe.

Again. The screw couplings being soldered on, are very likely to be, and often are in practice, detached. It is easily conceivable that an artificial joint of this kind is exposed to minute defects, hardly perceptible by the workmen, but which the continual action of the water, with a "head" such as is required for the high service, cannot fail to discover, and also to aggravate.

In France the screw socket pipes were used for lengths of about 80 feet, and then flange pipes were introduced to admit of repairs in case of accident. Great inconvenience arose from this great length between the flange joints; for it is invariably found that the oxidation of the iron in the worm of the screw joints, made these last adhere together so firmly, that it was next to impossible to separate them; or at least the solder between the screw flange and the tube was so much detached, that the water, when reintroduced,

almost invariably forced it way through the joint.

The objects to be attained are, to assure the pipes against compression by increasing their resistance to a lateral, or transverse strain; next to introduce some means of making the joints, which should not be liable to the objections stated above. There is a collateral objection to these pipes, which in some cases assumes a very great importance, but which might also be obviated; namely, that the settlement of the earth round them, when in place, gives rise to a species of friction which destroys the asphalte coating, and leaves the wrought iron exposed to the action of the salts, and of the moisture of the ground. I have seen some of these pipes at Havre nearly eaten through from the outside, the inside remaining perfect. Should the manufacturers in question remove these objections, they would confer a benefit upon the profession, inasmuch as the pipes in question do not affect the quality of the water like those generally used. G. R. Burnell.

ART-EDUCATION FOR THE PEOPLE.

The people of this country have been long allowed to remain ignorant of the fine arts, and debarred, in consequence, of much that highly concerns their knowing. Their treasures, however, should be now open to them, and they should be trained for them by means of artistic discipline being made, henceforward, an important part in the system of our national instruction. In all the public schools and establishments for upraising the popular mind it has been strangely omitted, and is now only beginning to be very feebly and inadequately enforced. It seems hitherto to have been considered as one of those divisions of human attainments too mysterious and sacred to be entered upon by the generality. The beautiful was created for all, although it is true it has been enjoyed only by the few! but civilization must make the knowledge of it universal. It cannot be the exclusive privilege of a class; all the world will one day be its worshippers. But, until this be the case, we shall find the majority of the community will remain sadly deficient in the necessary amount of discrimination of what is true, natural, or beautiful; their sympathy and admiration in presence of monuments of national glory will be dead, and their patriotism will grow cold. With these reasons, we think the subject of art-education is one that ought to have great weight with the political thinker and legislator. Communicate this to the operatives, mechanics, and artizans of the country, for their sakes and for its honour,—for the cause of art and artists: you will improve the condition of the one, and exalt the character of the other; they will commence a mutual existence for each other; artists will be compelled, as they value fame, to produce excellent works, for then no mediocrity will be tolerated by the multitude, nor will they any longer be imposed upon by the accustomed arrogance and flippancy of critics. This set of men, wise in their own generation, will have to be on their guard; and those who have been indifferent about the reputation of others, will have to be careful in future about their own. F. L.

A STARTLER FOR THE DRAIN-PIPE MAKERS.

The following are tenders for draining an estate at Kennington-cross, the property of Mr. Henry Bowden; Mr. Rogers, architect. The work consists of nearly 3,000 feet run of tubular socket glazed earthenware pipes, of different sizes, from 4 inch to 15 inch.

Mutter	£1,036	0	0
Lawrence	687	10	0
Payne	658	2	8
Robson	619	13	7
Pauling	613	4	0
Taylor	600	0	0
Macey	568	0	0
Corbett	511	10	2
Preston	447	16	0
Munday	398	11	11
Clement and Stanfield	389	0	0
Hill	334	13	2
Jarvis	333	0	0
Dethick	316	0	0
Kelly	274	4	2

THE BIRMINGHAM UNION COMPETITION.

A PRETTY STATEMENT.

I am led by the manly and independent manner in which you always advocate fair play, and expose all abuses connected with architectural competitions, but more especially by what you have already published respecting the doings of the Birmingham guardians, to send you some particulars I have received relative to the said board; in order that you may further expose the gross injustice that has been done those architects, who, like myself, were induced by the specious promises and great professions of honesty and fair dealing made by the guardians at the time they issued their conditions and instructions to architects.

From inquiries I have lately made, I now find that the whole affair from beginning to end has been, to say the least of it, a delusion and a snare, and I think you will acknowledge a more disgraceful or dishonest affair never came under your notice, when I tell you I am in possession of information, which not only proves the truth of the statement made by Mr. Brookes as regards Messrs. Drury and Bateman's names being on their drawings, but also confirms the suspicion that two at least out of the three judges were influenced and guided thereby, in the opinion they gave of the designs submitted for them to examine and report upon: in proof of which I would mention the fact that one of them (Mr. Edge) canvassed some of the guardians in favour of Messrs. Drury and Bateman, during the first competition; and that it is currently reported in Birmingham, that another of the judges (Mr. Gibson) is about forming an alliance with the family of one of the successful competitors. I therefore think under these circumstances, that you and every other unprejudiced person will agree, that I, with every other competitor, have good reasons for impugning the disinterestedness of a tribunal so constituted.

In addition to what I have already stated, I have been informed that a large sum of money was spent during the late election of guardians which took place between the first and second competition, to ensure the return of the present members, and although it would be very difficult, if not impossible, to prove that a large portion of it was subscribed by the present successful competitors, yet such I am informed was reported at the time of election, and what serves to confirm this statement, is the fact that nearly, if not quite all their supporters in the first competition, the present chairman of the board amongst the number, were re-elected and the opposing party thrown out; and besides which, it was well known that but few, if any, of the party who took an active part in the election, had sufficient interest for spending money upon such an occasion.

In order to satisfy the competitors and the public at large that the design recommended by the judges, and finally adopted by the guardians and Poor-law Commissioners, does display such superior talent as to require so little difficulty in arriving at a judgment independent of the names of the architects, I would recommend that a public exhibition be made of all the designs sent in; which course, I think, neither the guardians nor the judges they appointed could possibly object to, if their decision has been an honest one. But in case they neglect this means of vindicating their characters, I would then recommend that a meeting of the competitors be called, for the purpose of arranging such exhibition, and forming a committee to make a report thereon, and taking such steps as they may deem advisable. As regards the expenses attending such exhibition, I have no doubt they would be more than covered by making a trifling charge to the public for viewing the same, as I understand the matter excites considerable interest in Birmingham; and should any surplus remain, after paying the expenses, it would serve to make up a fund for the purpose of trying a question at law, whether each competitor is entitled to be paid for his design, provided it can be clearly proved the guardians have broken their contract by not fulfilling the conditions of the competition: or it might be given to some needy and useful charity in the neighbourhood.

I do not wish my name to appear, but I enclose my card as a guarantee of my good faith. Lover of Fair Play.

PARKS FOR THE METROPOLIS.

Something has been said recently in The Builder on the parks. Now, in my opinion, gross negligence has been manifested for the welfare of the inhabitants of this overgrown metropolis, excepting as regards the western portion, and perhaps I should admit the extreme eastern part. In the year 1833 a select committee was appointed in the House of Commons, to consider the propriety of establishing additional public parks and places for exercise. The committee having considered the matter, reported that the number of such places were insufficient then for the requirements of the public, and recommended that *five additional* sites should be appropriated for the establishment of public parks and walks.

Now, Sir, since that period, *sixteen years ago*, what has been done? Victoria Park, such as it is, has been partly formed; and the *very best site* for a public park in the neighbourhood of London, viz., Copenhagen Fields, has been suffered to be entirely destroyed, and almost every footpath in that neighbourhood closed against the public, which, at the time above mentioned, they had full enjoyment of.

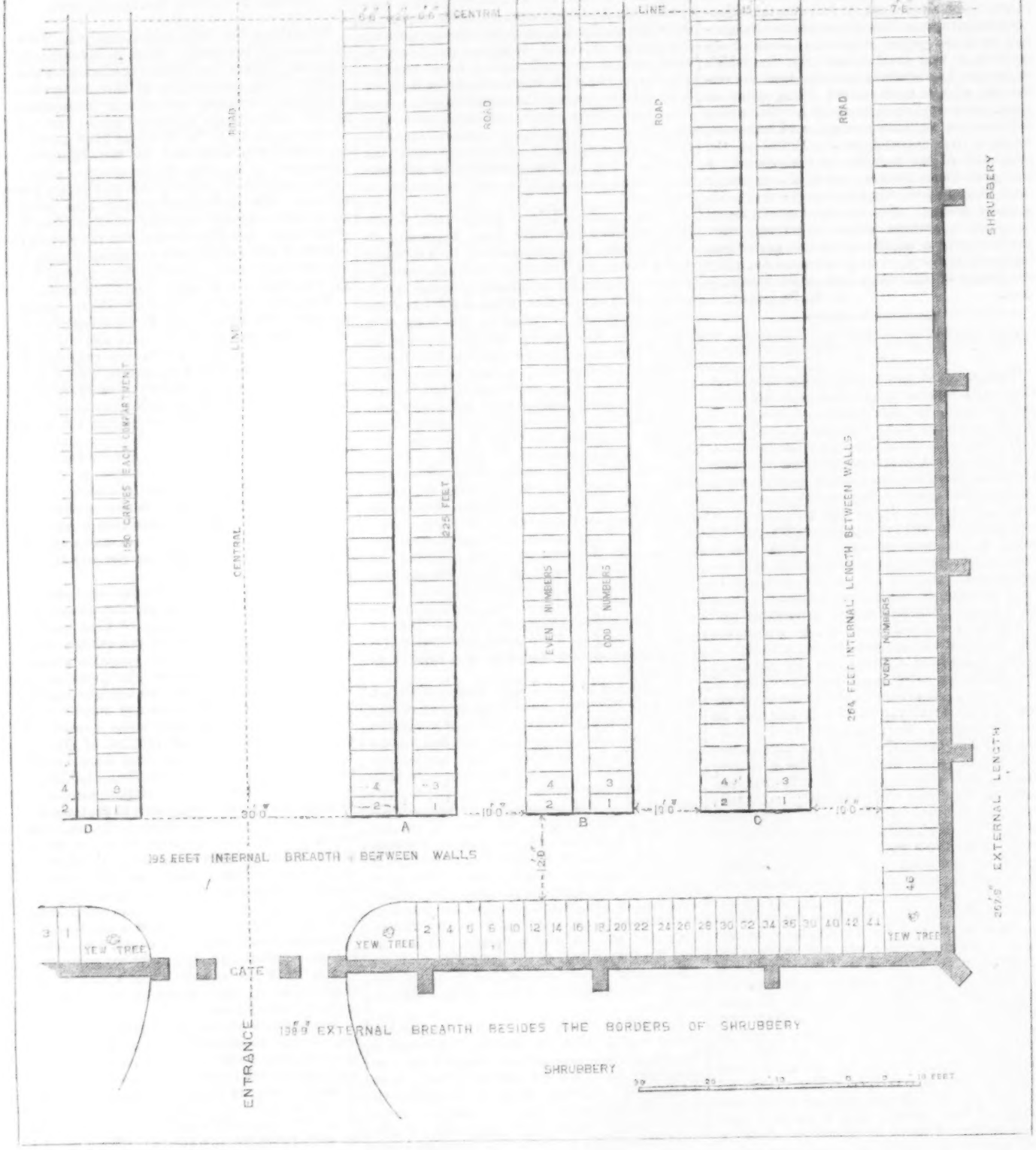
Hackney Downs, too,—these would form a noble park. But there are boards up to say that the ground is to be let for building purposes; although I believe *it is* or *was common*, or *lammas land*. But no measures have ever been taken, at least that I am aware of, to secure this beautiful spot for the use of the public.

I do not mean to blame the present Government for all this. Of course they cannot be answerable for the misdeeds of their predecessors. But I must say that I think it very hard, that when the sum of 150,000*l.* should be lavished upon additions (the propriety of which is very questionable) to a single palace, which has already cost no one knows how much, and such immense sums should be expended upon the new Houses of Parliament, so little should have been done for the suffering million. By the suffering million, I mean those poor creatures who are compelled to drag on a miserable existence in the crowded courts and alleys of this bloated city, and who scarcely ever, *now*, are able to see a green field. I do not mean those who can afford to spend two or three weeks or months at a watering-place every year, nor those who, besides having the enjoyment of the parks at all times at their command, spend a considerable portion of their time at their country seats, but the poor artizan and clerk, who are compelled to toil from year's end to year's end in the close workshop and counting-house for the means of subsistence.

The builders are not blameless in this matter, for the reckless way in which they have covered every available spot of ground without reservation; and this they will find out the error of before long, or I am very much mistaken. The better class of houses, that is, houses of from 50*l.* a-year and upwards, do not let now so well as they used to do. Those parties who can afford it are beginning to move off a little way into the country, along the different lines of railway. I know three or four instances of this within these last twelve months. One party has gone to reside at Sydenham, from the neighbourhood of Cloudesley-square, Islington, and the other two to Penge, on the Croydon line, from Myddelton-square. Now, as new lines of railway are opened, and the facilities for residing a short distance from town increase, so will the houses in the suburbs be deserted by the most respectable tenants, and the depreciation of house property in these neighbourhoods be *beyond all calculation*; and, in the end, the consequences will fall upon the heads of those by whose means and connivance it was brought about. J. C. P.

Enforcement of Cleanliness in Dwellings.—The corporation of Brussels, and several other large Belgian cities, have determined, it is said, forcibly to close all houses left uncleansed, and to stick on the door a bill bearing the words "interdicted house."

DATA FOR A PAROCHIAL CEMETERY.



A PLAN FOR A PARISH BURIAL-GROUND.

DATA FOR CHURCHWARDENS.

THE public appear now to be alive to the impropriety of continuing the practice of intramural burials. In most towns with which I am acquainted the churchyards are completely full of coffins; and thus, independently of the question of health, there exists a sufficient reason why other burial-grounds should be provided.

It has struck me with some surprise that no parties have as yet given any ideas on the subject; I therefore take it up, with the view of assisting churchwardens, or other authorities entrusted with such matters, to judge of the quantity of ground required, and the number of graves necessary in proportion to the population. It is of some importance that the ground should be properly laid out in the first instance, because the arrangement (if there be any) cannot well be altered after interments have taken place.

Annexed is a plan of a burial-ground, capable of containing 1,174 graves, each 6 feet 6 inches by 3 feet, and numbered, having a communication by road, without trespassing on any other grave. I propose that the burial-ground should be enclosed by a wall, having its footings carried down to the depth of the deepest graves—say 7 feet below the surface,—and that there should be a shrubbery or plantation, of from 30 to 33 feet broad, on the outside, to be kept in neat order, with a view to prevent houses or sheds from being built in contact with the walls, overlooking the ground, and otherwise becoming a nuisance.

I have not shown any buildings to contain tools, &c., because, if required, they can afterwards be erected on the shrubbery ground.

It is evident that the number of graves can either be increased or diminished, by increasing or diminishing the number of the compartments A B C D E F by an equal number on each side of the central line. The soil chosen should be gravel, and not clay, if it can be avoided.

The plan shows one quarter of a burial-ground calculated to contain 1,174 graves. One-fortieth of the population are supposed to die annually, but the ground should not be disturbed for at least seven years after interment. Thus, the population ÷ 40 and × 7 gives the least number of graves required for the parish or district. The space here occupied is 110 yards × 88 yards, = 9,680 yards superficial, or two acres.

R. T. (Colonel.)

P.S. According to the data here supposed, a population of

5,000	will require	875 graves.
10,000	,,	1,750 ,,
15,000	,,	2,625 ,,
20,000	,,	3,500 ,,
25,000	,,	4,375 ,,
30,000	,,	5,250 ,,
35,000	,,	6,125 ,,
40,000	,,	7,000 ,,

MACADAMIZED ROADS FOR STREETS OF LARGE TOWNS.*

THERE is a prevalent feeling against the employment of broken stone roads for streets, because, as they are usually managed, they are the cause of great inconvenience to householders and others by the dirt and dust they occasion, and also because their maintenance and repairs are very expensive, while the draught of vehicles upon them is very heavy. The object of this paper is to prove, from long continued experience on a large scale, that these objections do not necessarily accompany the use of such roads. In discussing this question the interests of two parties must be considered: those who principally use the road,—the owners and employers of horses and vehicles,—and those who pay for it,—the rate-payers, who are they who would be injured and annoyed if it were unduly expensive or unnecessarily dirty, dusty, and noisy. It is a common error to consider that road the cheapest which costs the least in direct expenditure. If, however, this so-called cheapest road cause waste of horse-power, undue wear and tear of horses and vehicles, loss of time by being unfit for rapid transit, and occasion loss to the inhabitants by filling their dwellings with dust, and covering their clothes with dirt, it is evident that such a road is really very dear. There is an apparent diversity of interest between those who use and those who pay for our public streets; as the principal loss from bad roads falls directly upon those who keep or employ horses and vehicles, while the expense of road repairs falls upon the inhabitants generally. A little consideration, however, will show that this diversity of interest is more apparent than real. It is the interest of all that there should be easy, safe, and cheap means of transit through the public streets; and any increase in the cost of transit is a source of indirect expense even to those who have no horses of their own, as it must add to the cost of everything carried through the streets, and of all hired vehicles, and of all the numberless conveniences which accompany residence in a large town. It must also be remembered that it is very wasteful to allow a road to go out of repair, since it is less costly to keep a road up than to restore it. That roadway is best for the owner or user of a horse or vehicle which can be travelled over most easily, safely, quickly, and cheaply; and that ease, safety, speed, and economy are to be obtained by having the road firm, even, and smooth, and perfectly free from mud or dust, or any form of unattached materials. It is evident that the same qualities will render the roadway most free from noise, dirt, and dust, the three great causes of annoyance and injury to the inhabitants of all ordinary streets. The question which remains to be considered is, whether the advantages of good roads to the inhabitants generally are worth their cost? If the question had to be decided in accordance with the interest of the users and owners of horses merely, no doubt whatever would be entertained. Of whatever nature the surface of a road is to be, it is essential that its foundation should be of firm material, well consolidated, and perfectly drained; if not, the crust becomes loosened and destroyed, the road is rough and uneven, and wears into holes and ruts. Having obtained a good foundation, the next point is to cover it with a hard, compact crust, impervious to water, and laid to a proper cross section. The stones must be broken to one regular size, well raked in, and fixed there by a binding composed of the grit collected in wet weather by the sweeping machines, and preserved for this purpose. This binding must be laid on regularly, and watered until the new material be firmly set, which it will do very quickly and with the regularity of a well-laid pavement. The sharp angles of the stones are preserved, and there is both great saving of material and a firmer crust formed than by the common method of leaving the material to work into its place without the use of binding,—in which case the angles of the stones are worn off and reduced to powder, and at least one-third of the material is wasted in forming a binding in which the stones may set. By the improved method the binding is formed of material that would otherwise be useless. Many road-makers object to the use of binding, on the ground that the road is rendered rotten by it, and that when the road is set it has to be carted away again. This is apt to be the case under bad management, and when ordinary soil is used, the fine particles of which work into mud, and keep the road from setting firmly. But the coarse grit obtained by the sweeping machine off the roads is the very same material as is produced by wearing away the angles of the stones, and when judiciously applied to a new coating it will speedily become as well consolidated and firm as an old road. In the common method not only is there great waste of material, but the loose stones occasion delay by their resistance, great fatigue to the horses, and danger to their feet, while the noise produced by their grinding together is annoying to the inhabitants. Upon the improved method the inconveniences of road repair are incomparably less than those of pavement. Both recoating and repairs may be made without stopping the traffic. Under no circumstances must any imperfection of surface be allowed. If a hollow be not immediately stopped it very quickly extends over the surface. All loose stones should be carefully picked, as every loose stone passed over by heavily laden carriages, if not ground to powder, breaks the crust of the road, and if water be permitted to lodge on the surface it will cause great mischief. It is the neglect of these essential precautions that has led many to consider macadamized roads expensive. They *are* expensive if neglected. On a well made road heavy showers do good, by cleansing them:—so, also, does artificial watering if the road be clean or swept quickly after it is watered. A road which is perfectly dry loses its tenacity, and the surface grinds into dust; whence the economy of judicious watering in hot weather, which preserves the road as well as prevents the annoyance of dust. The practice so common in London and elsewhere of heavily watering a dirty road without cleansing it, and thereby converting the dust into mud, is very injurious to the road, and merely changes one nuisance into another—dust into mud. A great source of waste, both to those who use and to those who repair a road, is to allow it to be dirty. The draught on a dirty road is twice as heavy as on a clean one,—that is, a horse must exert double force to draw his load with the same speed. The cost, however, of employing double force is so great, that the expedient of diminishing the speed is generally adopted, as a horse can exert greater pulling force at a slower pace,—less power being required to carry his own body. It often happens that the extra resistance occasioned by dirt diminishes the speed one-fifth or one-fourth. The effect of the dirt, therefore, is to increase the work by 20 or 25 per cent. It will easily be believed that such a waste far exceeds the cost of the most perfect cleansing. This is the case when cleansing is done by scrapers (the greatest enemy a macadamized road has to contend against). By their use the stones are dragged from their places, and the adhesive dirt is not effectually taken away. Sweeping is the only mode of cleansing that should be allowed, either on streets or turnpike roads. Sweeping by the wide brooms of Mr. Whitworth's machine is preferable to all other modes of cleansing yet tried. It must be evident, that the fact of these wide brooms sweeping longitudinally, with a pressure that can be adjusted according to circumstances, tends powerfully to preserve the road and to consolidate its surface. They press most upon the ridges, and least upon the hollows, thus tending to reduce the former, and fill up the latter. When the dirt is stiff, and adheres firmly to the stones, it should first be well watered, when it may be completely removed by the machine, without disturbing the crust, leaving the surface firm and compact. The use of water for this purpose has been objected to by high authorities, on the ground that it *does* remove the useful grit; but the contrary has been proved by ample experience. I have found the use of the sweeping machines, with the proper employment of water, has reduced the amount of material required for the repair of roads in Birmingham one-third,—namely, from about 20,000 to 13,000 cubic yards. The first-named amount is the average for seven years preceding the introduction of machines,—the latter, the three years subsequent.

The great objection urged against macadamized roads for streets is the annoyance by dust and dirt which they occasion, and many persons prefer submitting to the deafening noise of pavement in order to avoid these; but this would not be the case if water and machine cleansing were adopted, the cost of which would be saved in diminished wear and tear. The entire cost of cleansing and watering Birmingham is about 5,000*l.* per annum,—or less than one penny per week for each of its inhabitants.

J. P. SMITH.

* The following is a portion of a paper read before the British Association for the Advancement of Science.

MANAGEMENT OF COMPETITIONS.

START not, nor throw this aside, on seeing the heading again. You closed your leader a few weeks ago with "Fight the good fight, and fear not." I trust you will apply this to architectural competition, and "fight it out." The subject, it is quite cheering to see, is being so well discussed by your correspondents, and *this time* with such a fore-shadowing of a successful, enduring, movement on the part of the profession, that I trust you will not close your columns to *weekly* communications on this topic (such as you have inserted for the last three weeks), till the right management of architectural competitions be, as it very soon must be, decided on by a "monster" meeting, which a *public* meeting of architects, cordially uniting to look after their common rights, will surely be—

"A stranger animal, cries one,
Sure never lived beneath the sun."

"W. W.'s" letter last week is useful, though I like not the scramble for "laurels" he hints at. The words of the institute's report on competitions, are "*to effect this object rests with the profession at large*," and the institute will, doubtless, not be wanting, should the profession, as the sailors have it, "turn out."

A meeting, to be of use, as ably shown by your correspondent "C.G." (page 435), should be put in communication with every known architect practising in Great Britain; and to effect this, would be attended with more expense than any one society might wish to incur; whereas the most trifling, insignificant subscription on the part of the profession as a body, would amply supply the requisite funds. Perhaps some of your correspondents can point out a mode of dealing with this difficulty.

One word more in allusion to your other last week's correspondent, "A Builder." *He* takes a most correct view of this question, and sees, like a clear-sighted "builder" as he is, that builders are vitally concerned in it, for what on earth can more conduce to the propagation of "blind builders" than the present mode of conducting architectural competitions, which sets architects one against another to produce—not the best structure, oh, no! but the most attractive, gaudy designs, which their authors undertake to realise for a mere song, succeed in the struggle thereby, and straightway (such is competition), institute a scramble of very "blind builders," to endorse their own promises? To THE BUILDER again I say, "fight the good fight, and *fight it out*."—Y.

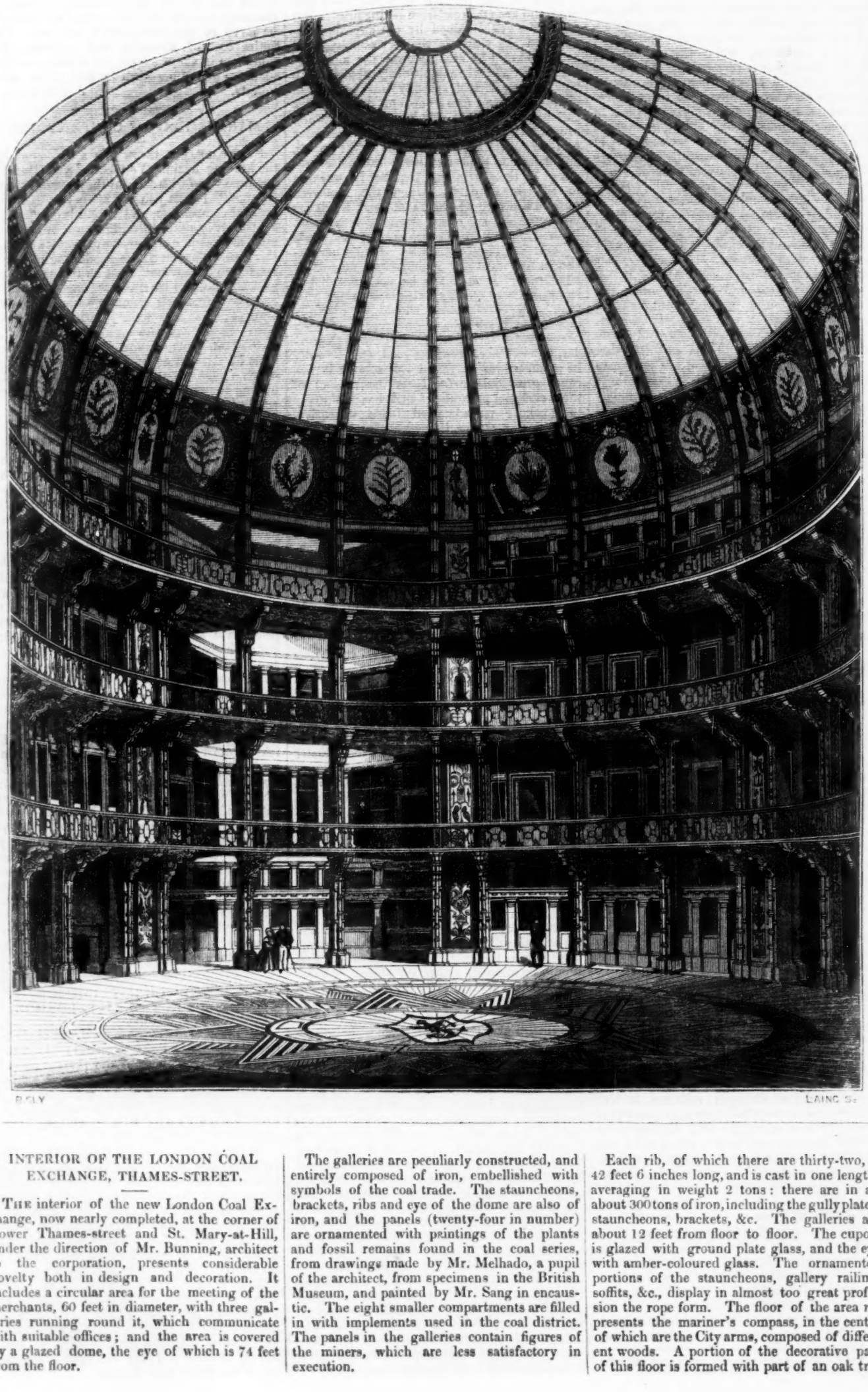
DISTRICT OF CHRIST CHURCH, ST. GEORGE'S-IN-THE-EAST, LONDON.

IN the year 1847 an appeal was made for public support in order to obtain:—1. A parsonage for the minister of the present church, the Rev. W. Quekett. 2. Three new schools for 700 children, with three residences. 3. A new church of stone, plain but substantial, for 1,000 persons. And 4. A parsonage for the minister of the new church.

The minister exerted himself greatly; Government and the London Diocesan Board of Education assisted; and the parsonage, the schools, and the residences (Mr. Geo. Smith, of the Mercers's Company, architect), have been completed, and a church is now being erected at the cost of a munificent nobleman. About 8,000*l.* have been spent, irrespective of the church. The schools and residences cost 3,858*l.*; the site, 700*l.*; the parsonage, 1,048*l.* There is a deficiency of 211*l.*; 1,500*l.* are wanted for a parsonage for the minister of the new church; and a further appeal is being made. The church is geometrical pointed in style, and is to have a tower and spire at the east end of the south aisle of nave.

THE LONDON COAL EXCHANGE, THAMES-STREET.

Mr. BUNNING, F.S.A., Architect.



BSLY LAING Sc

INTERIOR OF THE LONDON COAL EXCHANGE, THAMES-STREET.

The interior of the new London Coal Exchange, now nearly completed, at the corner of Lower Thames-street and St. Mary-at-Hill, under the direction of Mr. Bunning, architect to the corporation, presents considerable novelty both in design and decoration. It includes a circular area for the meeting of the merchants, 60 feet in diameter, with three galleries running round it, which communicate with suitable offices; and the area is covered by a glazed dome, the eye of which is 74 feet from the floor.

The galleries are peculiarly constructed, and entirely composed of iron, embellished with symbols of the coal trade. The stauncheons, brackets, ribs and eye of the dome are also of iron, and the panels (twenty-four in number) are ornamented with printings of the plants and fossil remains found in the coal series, from drawings made by Mr. Melhado, a pupil of the architect, from specimens in the British Museum, and painted by Mr. Sang in encaustic. The eight smaller compartments are filled in with implements used in the coal district. The panels in the galleries contain figures of the miners, which are less satisfactory in execution.

Each rib, of which there are thirty-two, is 42 feet 6 inches long, and is cast in one length, averaging in weight 2 tons: there are in all about 300 tons of iron, including the gully plates, stauncheons, brackets, &c. The galleries are about 12 feet from floor to floor. The cupola is glazed with ground plate glass, and the eye with amber-coloured glass. The ornamented portions of the stauncheons, gallery railing, soffits, &c., display in almost too great profusion the rope form. The floor of the area represents the mariner's compass, in the centre of which are the City arms, composed of different woods. A portion of the decorative part of this floor is formed with part of an oak tree

which had been found imbedded in the river Tyne.

A staircase leads to the hyporcaust which was discovered in excavating for the foundation, and described in our pages at the time. A visit to this will amply repay the lovers of antiquity; and its minute agreement with the details given by Vitruvius should be noticed.

The artificers' works generally have been performed by Mr. Trego; the iron-work by Messrs. Dewer; and the wood-work has been seasoned by Messrs. Davison and Symington's patent desiccating process. The floor of the merchants' area was laid down by the first-named of these gentlemen, Mr. Davison.

The cost of this Exchange will be about 40,000*l.* A view of the exterior of the building, which has a circular tower 100 feet high at the angle of the two fronts, forming the principal entrance and containing a staircase leading to the several stories, will be found in our fifth volume, page 566.

SUPPLY OF WATER.

It has been stated in The Builder that 70,000 houses in the metropolis are without a supply of water; and the public are recommended to raise an outcry until a supply be raised,—but how the outcry is to accomplish the object does not appear.

These houses are mostly of the smallest class, situated in courts and alleys, and occupied by tenants paying weekly rents to landlords, whose great object is to make the properties as profitable as possible. The tenants get their water how they can—from pumps or common cocks in the neighbourhood, or perhaps buy or beg of some publican or shopkeeper. Two difficulties must be dealt with, in order to remove the evil. An outlay must be made, to convey the water into the houses; and an annual payment must be secured to the parties who convey the water: it would be idle to expect that the Henley, or any other waterworks company (new or old) would spend money to improve other persons' property, or afford a supply of water, except upon remunerative principles. It is the owners of the property only that must be looked to; and there can be no more reason why a man should be allowed to let a house for the manufacture of fever and pestilence, than that he should be allowed to poison the atmosphere in any other manner. E.

*** E. does not see how an outcry for water is to aid in obtaining a good supply of it. He may depend on it that without an outcry it will never be procured. The outcry must be for *sufficient* water, *pure* water, and *cheap* water; and when this is to be had, and the vital importance of it is brought to the minds of all, landlords will *feel* made, or *be* made to afford it, to those not sufficiently strong to claim it for themselves. Can the existing water companies comply with the requirement? That they do not is certain. If *they* cannot, or will not, those who will undertake to do so should be supported on all hands. A continuous and abundant supply of *pure* water is imperatively demanded. We direct attention to the following communication on same subject.

I beg, through your valuable journal, to call the attention of the public to the source from whence all the water for the southern districts of London is supplied. Whilst a great portion of the north side of the Thames,—say the City of London, and parts around, are supplied from the New River—a stream comparatively pure,*—and this district has suffered very slightly with respect to the cholera,—the south side, such as Lambeth, Newington, &c. &c., has suffered a dreadful mortality. May not this be greatly attributed to the water, impregnated as it is with everything that is bad and prejudicial to health? And, though the water company professes to filter it before it is sent in to our houses, which they may do, as regards anything like substances, they cannot filter the filthy mixture of liquids from it any more than they could, by filtering, turn beer into spring water. Consequently we, on the south side of London, are compelled to drink it, such as it is. I think, after this, we cannot wonder at the amount of illness and death. The only wonder is, that we are not all poisoned together, for it only requires one moment's consideration, or a glance at the points in the river from whence the supply is taken, to fully explain the greater extent of mortality on the south side of London over the north. The Thames water was bad enough before, but since the flushing of the sewers, of course it is ten times worse than ever;—so they, in their wisdom, flush the sewers on the north side of London, and we, on the south side, are compelled to drink it,—a very pretty state of things truly. Common sense would immediately condemn such a plan, but that is an article in very little use amongst committees. One sensible man would do more practical good than half the committees combined. The state of the river has been so abominable of late that the steam-boat passengers could scarcely bear the smell; and yet this filth is served up for domestic purposes. Such a course ought, in justice to the inhabitants, to be stopped as soon as possible; and this might be done by laying down a main, at any cost, by the side of the Kingston Railway, from about Kingston to their tanks in Battersea fields, so as to have a supply of water above the influence of the tide. Until some remedy be obtained, we must drink the pollutions of London, and die in consequence. R. M.

* *Only* comparatively so.—Ed.

NOTES IN THE PROVINCES.

A chapel of ease is being erected on Lettygreen, near Hertford, under the direction of Mr. G. Fowler Jones, to accommodate 125 in open seats, 100 of which are free. The style Early English; the plan a parallelogram, 50 feet by 21 feet; the walls of brick, faced with flint, with stone dressings; a bell turret on west gable; high pitched roof, open to the boarding, and stained and varnished; cost 630*l.*, which has been raised by subscription, through the exertions of the rector of Hertingfordbury and some of the neighbouring gentlemen, the site being given by Lord Cowper. The building is to be ready for consecration towards the end of October.——Considerable alterations are now in progress, under the same architect, at the recently erected church at Tolmers, in the same county, to make it more ecclesiastical: it has, along with the school and master's house, been built and endowed by Mr. Thomas Mills, of Tolmers.——In consequence of the recent destruction of eight houses in the market-place of Cambridge by fire, it is now proposed to remove the whole of the west side of the market-hill, together with Warwick-street or Pump-lane, throwing open the market to St. Mary's Church, and the University buildings and grounds beyond.——The Sanitary and Drainage Committee of this town met the other day to receive tenders for drains in several important districts:—For Newmarket-road, 528 yards, tender of Samuel Peacock accepted, price 12s. 3d. per yard,—average depth 13 feet; other tenders were sent in, one at 18s., and another at 14s. a-yard:—For Gas-lane, offer of James Stevens taken, at 7s. 6d. per yard,—depth 7 feet 6 inches:—For Albert-street, John Hall's tender accepted, at 7s. 6d., —depth 9 feet:—For Thompson's-lane the work is deferred:—For St. Peter's-street, 165 yards,—average depth 9 feet 6 inches, James Stevens, contractor, at 8s. 3d. per yard. ——The contractors are carrying out the new sewerage of Colchester, with vigour.——The new church at Kemp-town, Brighton, erected principally at the expense of the Marquis of Bristol, with accommodation for the pupils of St. Mary's Hall for education of daughters of deceased clergymen, has been consecrated.——The Southampton Sanitary Committee have resolved to recommend the Board of Waterworks forthwith to form an additional reservoir on the common for the better supply of water to the town. The cost of a five acre reservoir was estimated at 2,300*l.*——It is seriously proposed to build an extensive university at Birkenhead, to constitute the Oxford or Cambridge of the north of England. The Archbishop of Canterbury, the Marquis of Westminster, and Lord Robert Grosvenor, have it is said already contributed 1,000*l.* each, and the highest sanction in the state, it is added, has been secured. A piece of ground, 10 acres in extent, belonging to Mr. Brassey, has been thought of as the *locus in quo*.—— The Liverpool Health Committee recommend that five of the most crowded burial grounds be closed; namely, St. Nicholas's, St. Peter's, St. Paul's, St. John's, and St. James's; and they have decided to apply to Parliament for power to close these fever-stills for ever.—— The foundation stone of Wycliffe Chapel, Heaton Norris, was laid on Saturday week. It is to be in the Pointed style, from plans prepared by Mr. E. Walters, the architect of Cavendish Chapel and schools, Manchester, The chapel is to cost 2,000*l.*, and will accommodate 600 adults and 100 children.——At Rochdale, on Monday week, a stone building, three stories high, 52 feet by 54 feet, built ten years ago, for handloom weaving flannels, and also six cottages, were "knocked down" for 225*l.* The handloom building alone cost more than 1,400*l.*

LAYING FIRST STONE OF THE NEW CITY OF LONDON PRISON.

The first stone of the new City Prison to be erected at Holloway, said by the Lord Mayor, who officiated, to be "the largest and most expensive building ever undertaken by the corporation," was laid on Wednesday last. According to the newspapers, for we received no intimation of the occurrence, the prison is intended for the separate confinement of four hundred convicted prisoners, and has large work-rooms attached. It is to be in the castellated style of architecture, and the main parts are to be faced with Kentish rag-stone.

A tower of considerable height will form a prominent feature, and by it the whole of the prison is to be ventilated. On each side of the main approach to the prison, and fronting the Camden-road, a dwelling-house, faced with red brick and Caen stone, will be erected, as residences for the governor and the chaplain. The entrance gateway and the porter's lodge will also be in the castellated style of architecture, faced with Kentish ragstone. The front portion of the main building, which will stand at a considerable distance from the road, will consist of a centre building, containing, on the basement, reception-cells, bath-rooms, examining-rooms, fumigating-rooms, furnace-rooms, and the principal staircase to the ground floor, which will contain offices for the governor, the magistrates'-room, and rooms for the medical officer and chaplain, and also separate visiting-places. On this floor will be a corridor, leading to the portion of the prison to be appropriated to adult prisoners; and above will be the chapel, arranged to contain separate inclosed seats for the prisoners.

Connected with the centre building, and diverging therefrom, will be four main wings, which are to be appropriated to the confinement of adult male prisoners. Each wing throughout the prison will contain a corridor the entire length and height of the building, with a projecting gallery on each story above the ground floor for access to the cells, and iron staircases leading thereto. The whole of the building appropriated to the confinement is to be fire-proof, and the floors will be formed with asphalte, with which also the roofs of the cells and corridors will be covered. The whole area contains about twelve acres of ground, and will be enclosed with a high wall.

INDURATED STONE.

In your publication of Sept. 15, I find an article on "Churchyard Monuments," wherein the decay and early ruin presented in their appearance is justly regretted. I would mention how this may be obviated.

In 1843, the hospital at Bayeux, also the cathedral and palace, were repaired and beautified with what is called indurated stone, and nothing in art can give more satisfaction than the result. The weather and all other influences usually detrimental to masonry, both as to durability and colour, have not the slightest effect thereon; and up to this moment no discolouration or decay is visible. This I can vouch for under the authority of the highest officers of the place, and amongst them, Judge Bertauldt.

I was much gratified lately when at Tonbridge Wells, to find a corroboration of the above, and much pleased to find the autho-

rities are sanctioning its use generally; in fact, resident architects and others are specifically *ordering* the hard wearing portions of various buildings to be executed therein. I find the invention now rests in Mr. Hutchison, who is carrying out the process in that town. On subsequent inquiries I find the invention renders the stone non-absorbent, throwing off all discolouring matter, with freedom from vegetation. In my humble judgment, an article more suitable to the requirements inferred from your remarks cannot be found, and from its low price it is well deserving encouragement. R. F.

POLYGONAL CHAPEL, CHURCH OF ST. MARY, WOOTON-UNDER-EDGE.

There is a chapel in the church of St. Mary, Wooton-under-Edge, Gloucestershire, the arrangement of which is rare for English architecture, namely, that of a polygonal apse (five sides of an octagon), set on the north wall of the nave, about half way down, and looking north. The sides by which this chapel is formed are remarkable for their extreme irregularity, as seen in the following dimensions:—the west wall, 10 feet 3 inches; north-west wall, 8 feet 4 inches; north wall, 5 feet 7 inches; north-east wall, 8 feet 10 inches; east wall, 10 feet 2 inches: each wall being 2 feet 4 inches in thickness. The N.W., N., and N.E. walls have windows of similar form and character, which are filled with singular though not very elegant tracery: they, nevertheless, are effective, and lend character to the building. There is a piscina in the wall which divides this chapel from the nave, close to the east wall; there is also a plain doorway in the west wall.

The roof is conical, reminding the observer of the form of roof prevalent among small buildings of the Early English style, though the general details of this chapel fix the period as the Decorated.

This chapel was formerly used as a vestry, but is now approached through an ancient arch, which has recently been opened by the ascent of a flight of steps, and is now used as a baptistery. There are other points in this interesting church well worthy of note, namely, two fine brasses in a very perfect state; some good incised grave crosses; two ambries; also some good Early English work in the arches and piers; a tower of fine detail and proportions of the Decorated period, the window and door of which (both very good specimens) are surmounted by labels studded with ball flower. The windows and other details of the church generally are perpendicular.

W. H. L.

PROPOSED PROVIDENT AND BENEVOLENT SOCIETY FOR BUILDING ARTIFICERS.

In an article which appeared in The Builder of the 15th inst. on the subject of the proposed Provident and Benevolent Society for Building Artificers, it was stated of the Servants' Provident Society, that while "during sixteen years since the passing of the Deferred Annuity Act, 941 persons only have availed themselves throughout the kingdom of the benefits of the Act, this society, during the short period of fourteen months, has added 103, or one-tenth of the whole, and since then has increased that number."

I hope you will allow me, as secretary to the Servants' Provident and Benevolent Society, to inform you, and your readers who may be interested in the subject proposed by Professor Cockerell, and advocated in your journal, that the success of the Servants' Society, which is held out as an encouragement to those who may be disposed to join the Builders' Society, has not only continued, but been largely increased, since the period referred to, viz., May 16th, 1849, when his Royal Highness Prince Albert condescended, as chairman of the public meeting in the Hanover-square Rooms, to explain the benefits which the Government annuity system offers to servants and the working-classes in general.

Up to May, 1849, 103 servants had contracted, through this society, for Government annuities, amounting to 1,658*l.*; and had paid towards the same 1,192*l.* 12s. 10d.; whereas, from May to the present time, 199 servants have contracted, through this society, for Government annuities, amounting to 3,429*l.* 10s.; and have paid for the same, 4,283*l.* 4s. 1d.; making in the whole, for eighteen months, 302 servants who have contracted for Government annuities, amounting to 5,087*l.* 10s.; and have paid for the same to the Government, through this society, no less a sum than 5,475*l.* 16s. 11d.

I trust that this statement may afford some encouragement to Professor Cockerell, and others, whether architects, builders, or artificers, who may feel disposed to co-operate with that gentleman and yourself to ensure the success of his laudable design.

It may be interesting to you to know that since the appearance of the article in The Builder, many persons connected with building have applied at this office for tables and general information respecting the subject of Government annuities and the working of our system. George Grant, Secretary.

PROCEEDINGS OF THE METROPOLITAN COMMISSION OF SEWERS.

We wasted one hour and a half this (Thursday) morning in listening to objections and explanations and angry recriminations, all wholly unnecessary under proper arrangement, in the Court of the Commissioners of Sewers; and considering that there were *fifteen* officers of the commission whose hours are paid for by the rate-payers, sitting all this time at the back of the room in case they might be wanted (to say nothing of eight reporters for the press), the public are somewhat interested in a knowledge of the fact, and an alteration in the state of things. Mr. Leslie was unyielding; objected to everything; obstructed everything; and yet we cannot condemn his proceedings, however disagreeable and ill natured they appeared, for the course seemed really to a great extent forced upon him, and the blame must rest with those who make the objections necessary. We give our usual report below. Our object in this preface is again to express our regret at the undignified position in which the commission and its officers stand before the public, and to call for immediate alteration. A very short time ago we showed the state of antagonism between the chief surveyor and the consulting engineer, and the smart things *they* said of each other. Now we have the latter and the assistant surveyor abusing one another, and endeavouring to show that each is quite unfit for his office. Let them take care lest they *all* prove their case in the eyes of the public. Mr. Gotto advises a plan of drainage for the luckless Westminster Improvements Commission. Mr. Austin feels it his duty, unasked, to report upon it as a work entirely "at variance with what is correct," "on erroneous principles;" "absurd and impracticable;" it is a "faulty work," "a useless work;" and he then gives his own views.

Mr. Gotto replies, in a report printed, but not yet before the court, that—"Either I (Gotto) am incompetent for the office of your assistant-surveyor, or Mr. Austin is incompetent to the duties of the consulting engineer to the commission," and asserts point blank that Mr. Austin's own propositions "form one mass of engineering blunders." We cautioned some of the officers of the court, when they were attacking people out of doors, against this slashing style of writing, but advice has been thrown away. They all write with too much facility; and then, as everything is printed (and a pretty bill there must be for this), the temptation to be smart is too much for their prudence.

Seriously, we invite Lord Carlisle to look into the matter, and put affairs on a better footing, or, as a matter of course, the first step taken when Parliament meets will be a Committee of Inquiry; and more printing, more delay, more waste of money.

A general court was held on Thursday, in Greek-street; Sir J. Burgoyne, in the chair.

The Cholera in Bethnal Green.—A letter was received from Mr. Baker, one of the coroners for Middlesex, setting forth that at the request of a jury of an inquest on John Papel, of Alfred-street, Bethnal-green, he wished to call the attention of the commissioners to the entire want of drainage in that locality, and that no less than 400 fatal cases of cholera had occurred in that parish. Referred to surveyor.

On the motion of Mr. L. Jones, the following resolution was agreed to:—"That a separate account be kept of the whole of the expenses incurred in any district where there has not been any rate made for such district, including the salaries of the officers employed in such respective districts, in order that such expenses may be charged to such district."

New Plan for the Drainage of Westminster.—On the following recommendation of the Works Committee being read—"That the plan proposed by the consulting engineer (Mr. Austin), for the sub-soil drainage of Westminster be sanctioned, and that permission be given to the Westminster Improvement Commissioners to carry out the works suggested at their own expense,"

Mr. Leslie having called for the minutes of the last court on this question, went on to observe that, at that court it was ordered that the plan of Mr. Gotto, with Mr. Austin's counter plan, should be printed, and sent round for the consideration of the Commissioners. But what were they now called upon to discuss? Why, a new project that had never been referred to the Works Committee at all, or that had been ordered to be printed. They were, in fact, called upon to adopt some new project, which was admitted to be incomplete, and was really no plan at all, and the court knew nothing about it.

Mr. Banfield believed the committee was the proper place to discuss the question. All that rested with the court was, to consider whether they ought to adopt the recommendations or not.—Mr. Leslie replied that this was one of the most extraordinary proceedings he had ever seen in the conduct of public business, two papers having been sent to the Works Committee, to consider which should be determined upon. Instead of which they proposed a third, of which the court had never heard, still less referred to them.

Mr. Jones concurred in this view, and thought that the plan of Mr. Austin, if plan there were, should be printed and sent round to the commissioners for consideration. He, however, had no wish to throw cold water on what had been done by the committee, or to consider how far Mr. Austin had trod closely on the heels of Mr. Gotto, as he heard was now the case, but still he was of opinion that the question should be postponed for further consideration.

Mr. Austin said his new work was partly of an experimental character, and he believed it would be calculated to benefit the whole district, rather than the line of the proposed street.—Mr. Leslie wished to ask Mr. Austin whether he had not thrown over the whole of his original plan, and had adopted almost in entire the plan of Mr. Gotto.—This Mr. Austin altogether denied.—Mr. Leslie said further, he was quite ready to prove that Mr. Austin could not carry into effect either of his plans.

It was urged by several commissioners that the question should be adjourned; and the matter was finally terminated by the adoption of the following resolution, on the motion of Mr. R. L. Jones:—"That the recommendation of the Works Committee upon the report of Mr. Austin, and the report of Mr. Austin containing his plan upon the new sewer in Westminster, and all communications with reference to that report and the original report of Mr. Gotto, be printed, and copies sent to each commissioner, and that further consideration be adjourned."

After the above motion was carried, a very sharp, recriminatory conversation was carried on, Mr. Leslie contending that Mr. Austin had placed the court in a position of the greatest difficulty. Mr. Austin called upon the Chairman, while he was their consulting engineer, to protect him from what he considered unfair attacks; and Mr. Banfield, designating the manner in which business was carried on as disgraceful to the court, and unworthy even of a bear-garden, was anxious to move an adjournment.

The Drainage of the Potteries, Kensington.—The next matter was to consider Messrs. Austin, Lovick, and Cresy's report on the drainage of the Potteries, of Kensington, presented to the court at its last meeting. After some questions as to the power of the court to call upon the owners of the property to do the works required, the report was agreed to.

The Sewage Manure Committee.—Mr. Leslie then said that the objections urged to his proceeding with the subject of the Trial Works Committee could not apply to the Sewage Manure Committee, as a report from it had been issued upwards of six months. He then went on to state that the expenses incurred by the Sewage Manure Committee did not warrant its continuance. For instance, the sum spent on seven acres amounted to more than the fee-simple of the land. They had spent an enormous amount, and all they were likely to receive in return was 15s. from Colonel Clitheroe, of Boston House, Hanwell. They needed no new experiments on the subject of sewage manure, which had been fully treated upon in the able report of Mr. Chadwick, known as the Poor Law Com-

missioners', as far back as 1842, at Edinburgh and other places. The recent experiments were the worst he had ever seen, and had been carried on in a most appropriate place—round the lunatic asylum at Hanwell. Had the question stopped here it would have been bad enough, but they had gone further, and placed themselves in communication with Mr. Tower, of Weald Hall, Essex, to supply him with sewage for irrigation of land at an altitude of 540 feet above high-water mark. They proposed to carry this sewage 16 miles through a 7-inch pipe, at the expense of the ratepayers. Believing [illegible] be the only means to stop this visionary expenditure, he should move that the Sewage Manure Committee be abolished.

Mr. Banfield seconded the motion, for unless (he said) the court supported the committee it would be impossible to go on; and to bring the question fairly before the court he had seconded the motion that the Sewage Manure Committee be abolished. The question led to a most protracted discussion, and Mr. Stone moved, as an amendment,—"That, considering the application of sewage manure to be a subject of invaluable importance to the ratepayers in towns and the agriculture of the country at large, they would be guilty of a neglect of duty in objecting to prosecute inquiries upon it, the court is of opinion that it would be premature to abolish the committee, and therefore requests it to continue its important labours." Carried by a large majority.

Books.

The Churches of the Middle Ages; or, Select Specimens of Early and Middle Pointed Structures, with a few of the purest late Pointed Examples, illustrated by Geometric and Perspective Drawings. By HENRY BOWMAN and J. S. CROWTHER, Architects. Manchester, 1848.

UNDER the above title Messrs. Bowman and Crowther have published three parts of what, if completed in a similar manner, will be a beautiful and valuable work. In their preliminary prospectus the authors said,—"This work is intended to be one of simple and practical utility. It is not the purpose of the authors to enunciate any new principles, or theorize in any way, but simply to give illustrations of entire churches of the purer styles, which, either as wholes, or from the great beauty of their details, will be of service in modern practice. At the same time, plates will be occasionally given of miscellaneous details, selected from other churches, which may not be considered of sufficient value to be given entire. The subjects will be selected principally from the midland and eastern counties, which are known to abound with the finest ecclesiastical structures. The illustrations will consist of geometrical drawings, details, and perspective views. It is unnecessary to add, that every detail and dimension given in the work will be from the most careful measurement."

In carrying out their intention, however, they have gone farther, and have added perspective views.

The churches illustrated in the parts now before us are St. Andrew's, Ewerby, and St. Andrew's, Heckington, both in Lincolnshire; and St. Mary's Chapel, Temple Balsall, in Warwickshire. To the first of these, fifteen plates are appropriated, including an extra plate of the mouldings, *full size*. The perspective of St. Andrew's, Heckington, is a charming specimen of lithography, by Hawkins.

We unhesitatingly recommend Messrs. Bowman and Crowther's work to our readers, as likely to be useful to them. It will consist of twenty parts of plates, and two parts of letterpress, and will form two handsome volumes. We suggest to the authors to confine themselves, as far as possible, to subjects which have not been given.*

Holland's Wages, Miscellaneous, and Haulage Tables; arranged upon a novel and comprehensive Principle. By J. T. HOLLAND, Accountant. London, Bradshaw's Office, 59, Fleet-street.

Tables, adapted to the Use of Builders, Carpenters, Timber Merchants, and others, to facilitate the Casting and Checking of Accounts. By JAMES MORRIS. London, 1849. Miller and Field, Bridge-road.

MR. HOLLAND'S tables will be found of great practical utility by contractors, surveyors, builders, and others in extensive business; for checking day-accounts, too, they are very valuable. They include a series of more than 36,000 calculations under the heads wages, miscellaneous, and haulage. The "miscellaneous" table applies from ¼ to 50,000 of any thing at from ¼d. to 40s. per yard, lb., or foot. The brick haulage from 25 to 100,000; ¼ to 15 miles, at from 1s. 6d. to 2s. 6d. per mile, and so on.

Mr. Morris's tables form a book of less size and cost than the preceding, and mainly refer to planing and sawing. Table 1, for example, shews at one view the cost of sawing any number of planks or deals by dozens and single cuts; Table 2, the cost of planing any number of boards at from 2d. to 1s. 4d. each; Table 3, the number of boards of any length and width required for one square of flooring, roofing, &c., and so on. They seem to be very carefully computed.

The New Testament in Lewisian Short-hand. By THOS. COGGIN. London: Nisbet and Co., Berners-street. 1849.

THIS little book is, perhaps, more curious than useful, although it may serve the purpose of the stenographic student. It is executed in lithography from the neat MS. of Mr. Coggin, who is in the office of the Commissioners of Sewers, and it is dedicated, by permission, to the Earl of Carlisle. We are glad to find the practice of short-hand writing increasing—it is a very useful art.

Miscellanea.

RAILWAY JOTTINGS.—The revenue of British railways, observes a contemporary, cannot now be put down at less than twelve millions a-year—a greater sum than many important political states possess. Two hundred millions of money were expended on them up to the close of last year, and even in the midst of the deep depression of 1848, when commerce was, as it were, in a state of complete collapse, not less than 33,234,818*l.* were expended in railway works. The number of passengers on these "new highways" during the last six months of 1848 was no less than 31,630,292, expending a sum of 3,283,301*l.*; or at the rate of 63,260,584, expending 6,566,602*l.* for the year. In the same half-year, goods, cattle, and parcels were conveyed at the charge of 2,461,662*l.*, or 4,923,324*l.* in the year. The amount of traffic for the week before last on 4,941 miles of railway was 245,550*l.*, being an increase of 19,815*l.* over the corresponding week of last year, when the mileage was 4,091. The average earnings per mile were 50*l.*, whilst last year they were 55*l.* ——The works on the Great Northern line, in the neighbourhood of Huntingdon, are progressing with rapidity. At the crossing of the Ouse, preparations are making for the iron bridge which is to span the river. Messrs. Fox and Henderson, who built the Earith-bridge, have, we understand, the contract for this structure. The plans for the viaduct north of the town have been completed.—— The Cardiff station on the South Wales line will be an extensive one. It will have all the offices and accommodation now found only at stations such as Swindon, Bristol, or Gloucester. Its entire cost will be about 11,000*l.* The framework of the roof and its supporters is to be of iron, while much of the roof itself will be of glass. The station at Neath will also be an important one, on account of the junction with the Vale of Neath Railway. The bridge over the new channel through which the Taff is to be conducted in its passage to the sea (near the town), is in a forward state.——The Berwick Railway-bridge across the Tweed, which has been in course of erection for about two years, it is probable will not be finished for upwards of twelve months. On the south side fourteen arches have been completed, and several others nearly so; but on the north the arches are not nearly so far advanced. The length of the whole will be about a quarter of a mile, and height above the river 120 feet.

PROJECTED WORKS.—Advertisements have been issued for tenders, by 6th October, for the freestone work in restoring Cowbridge Church, Glamorganshire; by 9th, for the construction and erection of boilers, pipes, and fittings for baths and washhouses at Bristol; by 8th, for 30,000 sleepers for the Brighton and South Coast line of railway; by 15th, for the rebuilding of Merrington Church; by 10th, for building an infirmary, with laundry and washhouse, &c., for the St. Olave's union workhouse; by 9th, for rebuilding a house at Southampton; by 3rd, for fifty iron lamp-posts for Mile-end Old-town; by 1st, for three cranes, one to lift 10 tons and the others five each, at Adelphi and Plymouth; by 24th inst., for repairing the Surrey Canal wharf and fences; by 3rd, for best plate iron, and for pitch and tar for the East-India Company; and by 2nd, for Rock-hill, Castle-hill, and Yorkshire paving, gravel, granite, &c., and also for carpenters', smiths', ironmongers', and bricklayers' works, for Camberwell district authorities.

ARCHITECTURAL LECTURES.—The Whittington Club, in the Strand, announce in their new programme two lectures on the "Romance of Architecture and Architectural Practice," by Mr. Wightwick, to be given in November. The syllabus of the second is suggestive:—"Anticipations of the architectural student—His first job—Duties of an architect—What he should know before he begins to practise—What he learns after he has begun—Dramatic illustration of the process of business between the architect and his patron, and his patroness!—End of the beginning—Perplexities of progress—Want of faith in two-feet rules—Disappointments in the new house, because of fond recollection of things in the old—Housemaid's closet *versus* portico—Sir J. Soane and 'guess estimates'—Summary of an architect's labours—'Rough sketches'—'Fair drawings'—Present condition of architectural practice."

INDIA-RUBBER BUFFERS AND SPRINGS have now been introduced, it is said, on upwards of fifty lines of railway, and stood the test of heat and cold, and wear and tear, so as to form a cheap and useful substitute for the old apparatus. Needing no cumbrous extension beneath the waggon or carriage framing, they can be fitted to newly-built waggons, it is alleged, for about 4*l.* 10s. a-set, and the wear and tear of the old buffers, estimated on luggage trains at 50 to 60 per cent. on their own much greater cost, thus reduced to 10 per cent. The new material has also been tried for bearing-springs, but has not hitherto come into use as such.

THE QUEEN'S PICTORIAL COMMISSIONER.—The *Limerick Chronicle* states that Mr. Bickham Escott, late M.P. for Winchester (of all men in the world), has been deputed her Majesty's "pictorial commissioner," to sketch the most beautiful natural scenery and modern cultivation in Ireland, in order that the Queen may make a selection for her visit next year; and that he has been in Limerick on that mission, taking sketches of the picturesque wood and water scenery of Castle Connell.—— Another Irish paper says, that the Queen has commissioned Mr. Deane Butler to prepare plans for a royal residence in Ireland, and that they are now ready. Quick work this, *if* true.

BLIND BUILDERS.—The following is a list of tenders opened on Wednesday for the erection of the Industrial Training Schools for 250 boys. They are to be built for the vestry of the parish of St. Pancras, on the site of the present stone-yard in the workhouse premises. Mr. James Lockyer, architect:—

C. O. S. Robson	£5,935	2	10
Clumanson and Moultrie	5,716	13	0
James Barr	5,611	0	0
J. Slade	5,569	0	0
J. W. Elliott	5,472	0	0
D. Bodger	5,219	13	2
W. Higgs	4,724	0	0
Thomas Rudkin	4,691	0	0
W. H. Cooper	4,649	0	0
Charles Crain	4,627	0	0
John Glen	4,511	0	0
Carter and Ellis	4,467	0	0
Joseph Yeoman	4,364	0	0
William Dennis	4,350	3	4
B. Homan	4,265	0	0
J. A. Hasher	3,921	0	0
W. Few	3,901	0	0
W. S. Dove, Milner-square (accepted)	3,862	0	0

* The same authors announce, we observe, another work, as a companion to this,—"Details of Pointed Architecture, practically Delineated; or, Working Drawings of Doorways, Windows, Buttresses, and other features of Ancient Ecclesiastical Architecture, with full-sized Sections of the Mouldings."

Assessment in Bethnal-green.—At a recent petty sessions to decide on objections to rates assessed by the surveyor, Mr. Paine, the case of Messrs. Truman and Hanbury, the brewers, was first tried. They objected to an increase from 1,150*l.* to 1,750*l.* on their brewery and stabling in the parish. The bulk of their premises are in the parish of Spitalfields, and stabling forms the most part of those in Bethnal-green, but that, the company's solicitor argued, could scarcely be rated in the same way as houses, inasmuch as the inhabitants were not likely to become chargeable to the parish. The frontage in the parish was 300 feet by 250 deep, and contained a cooperage and storehouse besides. Mr. Paine argued in defence, that the Act compelled him to regard this property not merely as stabling, but as a valuable adjunct to the brewery. There was stabling for 127 horses, which would pine and die in ordinary stables. The premises also contained a dwelling-house, and various other buildings, besides twelve vats, each said to be capable of holding a party of 100 seated at dinner. The area of the cooperage was 42,000 feet, and paved with granite. Mr. Parnell said that he never heard of paving being rated; and as for the vats, they were not fixtures, and were actually moved on some occasions. Details were then gone into, after which the court decided that 15*s.* per foot for frontage in Brick-lane, and 7*s.* for the others was too high, 7*s.* and 5*s.* being sufficient. The vats also being moveable, must be exempted. As for the other parts of the case, "seeing that we are bound," said the magistrate, "to rate machinery and plant, which was never done in this parish before, and that we must look at the value of these stables in connection with the important purposes to which they are applied, we consider it all proved." 150*l.* were then deducted on vats and land, and the assessment confirmed at 1,600*l.* Mr. Parnell intimated that his clients would doubtless crrry the case before another tribunal.——Mr. C. Eagle, of Hackney-road, objected that the rating of his (public) house had been increased from 32*l.* to 45*l.* His rent was 40*l.*, on a lease with twenty-two years to run. Declined to say what premium he paid: rate confirmed.

Electro-Telegraphic Progress.—The telegraph at the Post-office is now in full operation, and despatches can be transmitted to Alnwick, Ambergate, Broxbourne, Birmingham, Burton-on-Trent, Barnsley, Beverley, Bridlington, Bradford, Berwick-on-Tweed, Bishopstoke, Chelmsford, Colchester, Cambridge, Chesterfield, Darlington, Derby, Dunbar, Durham, Ely, Edinburgh, Gloucester, Gosport, Glasgow, Hertford, Hull, Halifax, Ipswich, Lincoln, Loughborough, Leicester, Lowestoffe, Leeds, Liverpool, Leith, March, Milton, Manchester, Malton, Morpeth, Newmarket, Newark, Nottingham, Norwich, Northallerton, Newcastle, Normanton, Peterborough, Romford, Rugby, Rotherham, Rochdale, Slough, Stortford, St. Ives, Stamford, Sheffield, Selby, Skipton, Scarborough, Sunderland, South Shields, Southampton, Thetford, Tamworth, Todmorden, Thirsk, Witham, Wisbeach, Worcester, Wakefield, Ware, York, and Yarmouth. The rate of charge for twenty words is 1d. per mile for first 50 miles, ½d. per mile for second 50 miles, and ¼d. per mile for any distance beyond 100 miles.——A proposal for carrying out the telegraph in British India, it is said, is under consideration by the East-India Company.

The Trafalgar-square Wells.—Workmen have been engaged in making canals in the ground straight along from the Spring-garden entrance to the park to the Storey's-gate entrance, for the purpose of laying down water-pipes, which are to convey the Trafalgar spring-water to Buckingham Palace. There is also a proposition for carrying the pipes up Constitution-hill across Knightsbridge into Hyde-park, to throw some thousands of gallons of pure water into the Serpentine. Along the line of pipes several water-pumps are to be erected for watering the streets.

Metal Cylinders cast without Cores.—A patent has been granted to Mr. A. Shanks, of Robert-street, Adelphi, engineer, for casting pipes, cylinders, and spherical vessels in moulds, by means of centrifugal force,—the mould being made to revolve on its axis by machinery, while the molten metal within adheres to its sides.

State of the Streets of Bristol.—With such intelligent and active authorities as we know Bristol has, it seems surprising that the surface of the streets should be allowed to remain in the miserably dirty state in which it is. The wind was blowing freshly as we walked through the "ancient city" on Saturday last, and the air at every fresh gust was filled with dust and triturated dung, to the great injury of the eyes, the temper, and the health of the busy crowd which filled both paths and roads. Good scavenging would, of course, cost money, but if some of the clear heads in the common council will quietly calculate the amount of injury done to the goods of the shopkeepers by this unnecessary dirt, the extra "washing and ironing" entailed on all the inhabitants, to say nothing of the effect on the general health (and illness and death are very costly matters), they will find that some thousands a-year would not pay the loss caused by the want of proper attention to the surface of the streets. This remark applies to many other places besides Bristol.

A Sanitary Commission for every Housekeeper.*—Some evening *soon*, provide yourself with a roll of brown paper, and visit every cellar sough in your dwelling. Light the roll of brown paper, and then extinguish the light, so as to leave only the smoking embers; apply the paper to the holes of the grid, and the direction of the smoke will tell you if you have a return draught from the drain. If the smoke is blown aside, get a sink-trap at once. This will be safer and cheaper than pouring any disinfecting fluid down your soughs. Look to the slop-stone pipe, and if it terminates in a sough, have a bell-trap put in the stone. Fever often enters by this waste pipe. The seeds of bowel complaints, dysentery, head-aches, enter many a house by a cellar sough, or a slop-stone pipe; the more readily if the house fires are connected with good drawing chimneys. The next visit of inspection may be to the bed-rooms; and when you enter, call to mind that though eye and limb may slumber, the heart and lungs know no rest. If eight hours be spent in the bedroom, the lungs have opened and closed 10,000 times during that repose, and the air which passes out is not only unfit to be breathed again, but contaminates the general air of the room; then remember a reckoning is due for the perspiration. Now inquire in what way you have aided the efforts of the lungs and the skin to purify the blood, and build up the waste of the day, and see whether you have not made a "famine of pure air." Remove the fire-board, take away the listing which has been tacked over the crevices of the window, and see that the joiner makes a way for the air to come in over the door (if you will sleep with it fully closed), and there is a corner in every room where the warmed and vitiated air may be led out. Bathing and sponging are excellent, but pure air in a bedroom is a *sine qua non* in this cholera time.

Levels of London.—Mr. Wyld, of the Strand, has published a map of London, on which are marked in red figures the levels taken by order of the Commissioners of Sewers for the information of those who contemplate submitting plans for the drainage of the metropolis. The altitudes are given in feet "above the approximate mean water at Liverpool, being 12½ feet below Trinity high-water mark."

Masons' Provident Institution.—Mr. Tite, F.R.S., has kindly consented to become president of the above institution, in the room of the late Alderman John Johnson. The objects of the institution are the erection of almshouses, and provision of a pension fund for decayed members of the trade, their widows and orphans, or for those who may become disabled by accident or infirmity.

Fire-proof Floors.—Messrs. Clarke and Motley, among other inventions, have patented what they think an improvement in the construction of floors of buildings fire-proof, on an economical plan, "which is not only applicable to new erections, but may be applied to existing buildings, such as warehouses, manufactories, mills, &c., very economically—viz., at not exceeding from 6d. to 9d. per superficial foot—so that a floor of 50 feet long and 20 feet wide may be rendered fire-proof for about 30*l.*"

* From a correspondent of the *Manchester Guardian*.

Cirencester Roman Pavement.—The newly-discovered pavement in the old town of Cirencester, the site of ancient Corinium, already mentioned by us, measures 25 feet square, and exhibits *nine circles* of nearly 5 feet diameter each. They contain (according to our correspondent) bold and well-executed heads of Ceres and Flora, and exceedingly spirited representations of Actæon and his dogs, and of Silenus riding on his ass.

Punctuality to Time by Rail enforced.—An Exeter solicitor, detained for an hour at the Starcross station on the South Devon line, was lately awarded 10*s.* damages by a jury, on the ground that an hour's delay in the arrival of a train, without good excuse, was actionable under the contract to carry passengers at a certain time, implied in the company's time-table.

On the Duration of Wood, and Means of Prolonging it.—The following are the results of experiments made with great care and patience by Mr. G. S. Hartig:—Pieces of wood of various kinds 2 5-8th inches square, were buried about an inch below the surface of the ground, and they decayed in the following order:—The lime, American birch, alder, and the trembling-leaved poplar, in three years; the common willow, horse-chesnut, and plane, in four years: the maple, red beech, and common birch, in five years; the elm, ash, hornbeam, and Lombardy poplar, in six years; the robinia, oak, Scotch fir, Weymouth pine, and silver fir, were only decayed to the depth of half an inch in seven years; the larch, common juniper, red cedar (*juniperus virginiana*), and arbor-vitæ, at the end of the last-mentioned period, remained uninjured. The duration of the respective woods depends greatly on their age and quality; specimens from young trees decaying much quicker than those from sound old trees; and, when well seasoned, they last much longer than when buried in an unseasoned state. In experiments with the woods cut into thin boards, decay proceeded in the following order, commencing with the most perishable order:—The plane, horse-chesnut, poplar, American birch, red beech, hornbeam, alder, ash, maple, silver fir, Scotch fir, elm, Weymouth pine, larch, robinia, or locust oak. It has been proved, by recent experiments, that the best mode of prolonging the duration of wood is to char it, and then paint it over with three or four coats of pitch. But simply charring the wood was of very little utility, as were also saturations with various salts, acids, &c.—*Revue Horticole.*

Novel Building Materials.—The erection of a tenement in the Low Calton, Edinburgh, in which fire-brick alone is employed as the building material, instead of stone, has excited some interest among the inhabitants in that locality. The building, of which one story is already completed, is to consist of three flats, and the fire-brick is used in blocks of the size and appearance of hewn stone. The basement story is designed for a warehouse, the exterior being in the form of shops, and the front exhibits the elegance and finish of polished ashlar. The blocks are of large size, being upon an average 2 feet in length by 14 inches deep; but those employed in the construction of the other parts of the building are smaller, ranging from 18 to 20 inches long by 6½ to 9 inches square. The principal advantage in the use of fire-brick is its resistance to fire and damp, but the expense, we believe, is greater than stone, from the heavy duty upon bricks. The building, however, will have a light and clean appearance, and the experiment is viewed with some interest.—*Edinburgh Weekly Register.*

TENDERS

For the first portion of the North Surrey Industrial School, Penge, Mr. Lee, architect, opened on the 26th inst., in the presence of the builders:—

Barrett	£14,895
George Todd	14,579
George Myers	13,710
Mark Patrick	13,440
Nicholson and Son	13,291
John Glenn	12,814
Jas. Barr	12,695
Thos. Burton	12,679
Jno. Willson	12,670
Wm. Trego	12,669
Wm. Higgs	12,178
Edw. Carter	11,987
Carter and Ellis	11,957
J. T. Taylor	11,797

TO CORRESPONDENTS.

"*To remove Whitewash.*"—A correspondent asks for "a simple receipt for removing old whitewash from freestone. Many coats may be easily detached, but how is the first coat to be cleansed from the stone—*i. e.* got *out* of it?"

Received.—"E. O. W." (the delay in appearance of the third part of the "Publication Society's" work is no fault of the Council. It is to consist of *text*; and to obtain this at a given time from those who have undertaken to supply it is difficult. Subscribers to societies of this sort, where all have one object, should be patient. The illustrations for next year are already in hand), "An old Subscriber" (apply to Potter, South Molton-street, London), "J. B. D.," "C. H. B.," "W. H. Weale" (where shall we send a proof?), "W. H. L." (thanks: the subject would scarcely justify engraving), "D. C." (declined, with thanks), "C. F.," "M. R.," "A. H." (the suggestion has been made and urged by us), "W. C.," "An Architect" (Bristol), "Subscriber from Beginning" (several modes have been given by us at different times), "E. E. C.," "W. R.," "A Sanitarian" (we could not advise without seeing the premises: get rid of the cesspool, of course, and get air under the floors), "S. P." (sorry we cannot comply. The View will be found in Part III. of "Buildings and Monuments"), "E. H." (similar article was already in type. Has our correspondent been to the "diggings," or where?), "G. R. B." (we shall be very glad to have the drawings), "J. W. G.," Liverpool (we have no authority to give our correspondent's address), "C. H. N.," "K.," "Idler in London," "A Peer."

NOTICE.—All communications respecting *advertisements* should be addressed to the "Publisher," and not to the "Editor:" all other communications should be addressed to the EDITOR, and *not* to the Publisher.

"*Books and Addresses.*"—We have not time to point out books or find references.

ADVERTISEMENTS.

TO ARCHITECTS.—COMPETITION AND OTHER DRAWINGS.

MR. THOMAS S. BOYS, Member of the New Society of Painters in Water Colours, and author of "The Picturesque Architecture of Paris, Ghent, Rouen, &c.," and of "London as it is," offers his services in Tinting Backgrounds, Landscapes, Perspective Views, Interiors, &c. From the long experience he has had in such subjects, he is fully aware of the points essentially necessary to be attended to. Drawings and designs lithographed in a superior manner.—Address, Mr. BOYS, 81, Great Titchfield-street, Oxford-street.

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FONTS from 3*l.* upwards. Specimens on view of the Early English, Decorated, and Perpendicular styles.

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	d.	d.	d.	d.	d.	d.	
Under 4 ft. long, or 3 ft. wide	3½	5	6	7	9	12	☐ ft. sup.
Ditto 5 ft. do., or 3 ft. do.	4	5½	7	8	10	14	do.
Ditto 6 ft. do., or 3 ft. do.	4½	6½	8	9	10½	16	do.
Ditto 7 ft. do., or 3 ft. do.	5	7	9	10	11	18	do.

Larger Slabs in proportion.

	Thick.						
	½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.	
	d.	d.	d.	d.	d.	d.	
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"Westminster, May 16th, 1848.

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NOVELTY OF ITS PRINCIPLE, SIMPLICITY OF ITS ARRANGEMENTS, AND ELEGANCE OF DESIGN,

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3 ft.	3 ft. 3 in.	3 ft. 6 in.	3 ft. 9 in.	4 ft.
£3.	£3. 10s.	£4. 15s.	£4.	£4. 10s.

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3 ft.	3 ft. 3 in.	3 ft. 6 in.	3 ft. 9 in.	4 ft.
£5.	£5. 15s.	£6. 5s.	£6. 10s.	£7.

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Do. Elliptic do., at 3½d., and 4d. do.

Manufacturer of WOLFASTON'S PATENT REGISTER STOVES, a certain cure for SMOKY CHIMNEYS, and effecting a great saving in fuel. To be seen in use daily.

Orders from the Country, accompanied with a remittance or reference, will meet with prompt attention.

CHUBBS' LOCKS, FIRE-PROOF SAFES, AND CASH BOXES.

CHUBBS' PATENT DETECTOR LOCKS give perfect security from false keys and picklocks, and also detect any attempt to open them. They are made of all sizes, and for every purpose to which locks are applied, and are strong, secure, simple, and durable.

CHUBBS' PATENT LATCH, for front doors, counting-house doors, &c., is simple in construction, low in price, and quite secure. The keys are particularly neat and portable.

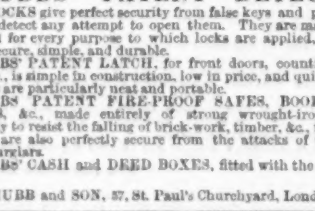
CHUBBS' PATENT FIRE-PROOF SAFES, BOOKCASES, CHESTS, &c., made entirely of strong wrought-iron, so as effectually to resist the falling of brick-work, timber, &c., in case of fire, and are also perfectly secure from the attacks of the most skilful burglars.

CHUBBS' CASH and DEED BOXES, fitted with the Detector Locks.

CHUBB and SON, 57, St. Paul's Churchyard, London.

By Her Majesty's Royal Letters Patent.

PITT'S PATENT SELF-ADJUSTING DOOR KNOBS AND LOOSE SPINDLES.



HART and SONS beg to invite the attention of architects, builders, and others, to their Door Furniture, mounted for PITT'S PATENTED SPINDLES. The knobs are stronger, more durable, and more elegant in form, than those in ordinary use, as the spindles, being loose, do not require the objectionable side screw. They are more readily fixed, are suitable for every description of lock now in use, and, as they adjust themselves to doors of different thicknesses, without alteration, are particularly adapted for the country or for exportation.

In addition to an extensive stock of door furniture in china, crystal, amber, and opal glass, buffalo horn, ivory, ebony, brass, &c., en suite, with finger-plates, bell-pulls, and levers, new patterns of original design are constantly being added, and an order either to sketch or pattern supplied very promptly. A simple one, for example, in three days, and a more elaborate one in less than a week.—May be obtained through any ironmonger, or direct from the proprietors and sole manufacturers, HART and SONS, Wholesale Ironmongers, 53, 54, 55, Wych-street, Strand, London.

A list of prices sent on application.

CAMBRIAN IRON FOUNDRY, ENGINE and BOILER MANUFACTORY, Newport, Monmouthshire.—ESTIMATES given for Gas and Water-works, Railway Bridges, and other CONTRACTS, to any extent.

Sept. 1, 1849. THOMAS EDWARDS, Proprietor.

IRON FOUNDRY, 80, Goswell-street (late of Brick-lane, St. Luke's).—J. J. JONES having made great additions to his STOCK of PATTERNS, begs to inform the Trade, that he can now supply them with Plain and Ornamental Iron Columns Girders, Railings, Gates, Iron Coping, Balconies, Window Guards, Verandahs, Ornamental Staircase Panels, Iron Staircases, Tomb Enclosures, Trellis Panelling, Lamp and other Brackets, Cantilevers, Newel Bars, Water Closet Work, Area Gratings, Fly and other Wheels, Wheel Plates, &c.

BAKER'S OVEN WORK, Forge Backs and Troughs, Rain Water Pipes and Gutters, Sash Weights, Furnace Bars, Stoves, Ranges, &c., always in stock.

IRON FOUNDRY,
68, DRURY-LANE, and CHARLES-STREET, DRURY-LANE
JOSEPH GLOVER,

Solicits the attention of the Trade to his extensive Stock of PATTERNS for CASTINGS of EVERY DESCRIPTION, consisting of those for every purpose, either structural or ornamental.

Wheel Pinion and Steam-Engine Patterns; Range Stove and Hot Plate Metal.

A stock of Rain-Water Pipes, Plain and O G Guttering, Air Bricks, Sash Weights, &c. &c.

A very superior description of Soot Door, particularly suitable for internal work, being perfectly secure, and not unsightly.

ESTIMATES given for IRON ROOFING and every description of Ironwork, complete to specification, and the work executed with every attention to quality and dispatch.

GLOVER'S FOUNDRY,
168, DRURY-LANE, and CHARLES-STREET.

TO CONTRACTORS AND BUILDERS.

CLAYTON, SHUTTLEWORTH and Co. beg to call attention to their PORTABLE STEAM-ENGINES, so admirably adapted for working mortar-mills, sawing, pumping, &c., in fact, for every purpose to which steam or horse power can be applied these engines will be found to effect a great saving, as well as expedite the work. They may be safely and efficiently managed by any steady labourer. The 5-horse power will not consume more than 5 cwt. of coals per day, and, being fixed upon wheels, requires only one horse to move it from place to place, and can, after its arrival, be set to work in the course of one hour. Engines of 3, 5, 7, or 8-horse power can be delivered in a fortnight from date of order.

Stamp-end Iron Works, Lincoln.

C., S. and Co. beg to submit the following testimonial:—

"Sunderland Docks, Contractor's Office,
"5th July, 1848.

"Gentlemen,—In reply to your inquiry, as to how the 'Portable Engines' we have had from you suit us, we have to say, that they give us entire satisfaction, and far exceed our most sanguine expectations respecting them. Our opinion of them for sawing, pile-driving, pumping, &c. (in fact for the general uses that contractors can apply engines to), is that, so far as anything of the sort that we have seen, they cannot be surpassed, either for doing the same quantity of work with the least quantity of fuel, or for little expense in keeping them in repair.—We are, Gentlemen, yours truly,
"JOHN CRAVEN and SON."

"To Messrs. Clayton, Shuttleworth, and Co.,
Engineers, &c., Stamp-end Works, Lincoln."

CAST-IRON PIPES, IRON WORK FOR OVENS, &c.

RAIN PIPES, &c.—F. A. TIDDEMAN, St. Ann's Wharf, Earl-street, City, near Blackfriars-bridge, keeps a large stock of Rain Pipes, Heads, Shoes, Elbows, &c., half round and O. G. Gutters, Socket Pipes for Water or Gas, Flanch Pipes, Sash Weights, and other Castings; Iron Work for Bakers' Ovens of every description, fitted complete, to be had in sets or in parts.—Prices equal to all competition. Contracts taken to any extent. Goods landed. A powerful crane.

VENTILATION.—TO ARCHITECTS, BUILDERS, GAS-FITTERS, AND GENERAL IRONMONGERS.—The attention of all concerned in the building and interior arrangements of houses is invited to the improved self-acting CHIMNEY VALVES constructed by Platow and Co., on the principle invented and made public by Dr. N. Arnott, with some practical details added to the original design. These valves are now fitted in strong cast-iron boxes, with secret balances and adjusting screws and other improvements, devised on strictly scientific, yet simple principles, and are to be obtained at the following reduced prices:—

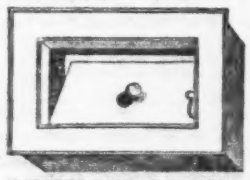
	japd. bronze. s. d.		a. d.		a. d.
No. 0—10 by 7½ ..	8 0				
japd. white gold beads.					
No. 1—12 by 9½ ..	17 0	With	22 0	With brass frame	33 0
No. 2—14½ by 10½ ..	22 6	trellis	28 0	and trellis burnish.	45 0
No. 3—17 by 12½ ..	38 0	fronts.	38 0	and lacq. or bronzed.	70 0

On receipt of a post-office order (payable at 62, High Holborn), including 6d. extra for package, any of the above sizes will be forwarded to any part of the country, with a sheet of drawings and full directions for fixing, &c.

PLATOW and Co's Wholesale Gas, Chandelier, and Fitting Manufactory and Warehouse, 55 and 56, High Holborn.

DR. ARNOTT'S VENTILATING CHIMNEY VALVE,

With internal movement, and all the latest improvements.



Constructed for the ventilation of apartments generally.

REDUCED LIST OF PRICES.

	First size, 11 by 8.	Second size, 16 by 9
Plain Iron Valve	6 0	9 6
Bronzed and Leathered	7 0	10 6
Japanned, white with Gold lines	11 6	16 6
Ditto with Trellis-work	17 0	25 0
Brass Front, lacqd. or bronzed	13 6	19 6
Ditto with Trellis work	19 0	27 0

Ventilators of any description made to order.

Manufactured by HART and SONS, 53, 54, 55, Wych-street Strand, London.—Post-office orders payable at 190, Strand.

CHEAP ORNAMENTAL GLASS.—I beg to inform my friends and the public, that I have now completed a new ENGINE, and, owing to the facility with which I can execute orders, I am enabled to reduce my former prices considerably. The prices are now from ONE SHILLING PER FOOT SUP., and borders from SIXPENCE PER FOOT RUN. A large quantity of the cheapest patterns always in stock. Embossing and painted work on the most moderate terms.—CHARLES LONG, No. 1, King-street, Baker-street, Portman-square.—Cash only.

BIRMINGHAM PLATE GLASS COMPANY are supplying PLATE GLASS of a superior quality, at an unusually moderate rate of charge. For estimates apply at their warehouse, No. 141, Fleet-street. Rough Plate, ¼, ⅜, ½, and 1-inch thick.

PATENT PLATE GLASS.—HETLEY and CO. beg to inform Architects, Builders, and the Trade generally, that their new Tariff of PRICES for the above is now ready, and will be forwarded on application. A REDUCTION of about 40 per cent. has been made on the usual Glazing sizes.—Sheet, Crown, and Ornamental Window-Glass Warehouse, 35, Soho-square, London.—ROUGH PLATE GLASS.

PLATE GLASS.—British Plate Glass, under 1 foot super, 1s. 2d.; under 1 foot 6 inches, 1s. 6d.; under 2 feet, 1s. 9d.; under 3 feet, 2s., per foot.

SHEET GLASS.—No. 16, ounce sheet, 3rd quality, in 200 foot cases, 38s. per case. No. 21, ditto, ditto, ditto, 52s. per foot.

Estimates for every description of glass, from 1-8th to 1-inch, may be had at THOS. MILLINGTON'S Warehouse, 87, Bishopsgate-street Without.

E. and W. H. JACKSON beg to call the attention of Builders and the trade to the reduced prices of their PATENT PLATE GLASS, which, from its cheapness, is now superseding crown in all respectable dwelling-houses. BRITISH and ROUGH PLATE, CROWN, SHEET, STAINED, and ORNAMENTAL GLASS, supplied of the best manufacture, and at the lowest terms. List of prices, estimates, and every information can be had on application at their warehouse, 315, Oxford-street.

THE UNION PLATE GLASS COMPANY beg to call the attention of architects, surveyors, builders, large consumers, and the trade generally, to the quality, colour, and substance of their highly-finished glass, and as the discounts vary according to size, they prefer giving a special estimate for each quantity required. To encourage the use of Plate Glass for glazing purposes, the price is considerably reduced, which will, for its durability and appearance, insure the preference to any other description.

ROUGH PLATE GLASS supplied for skylights, warehouses, workshops, and flooring, 3-8ths, ½, ⅝, and 1 inch thick.

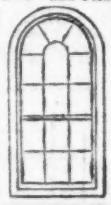
London Warehouse, 99, Hatton-garden, Holborn.

H. CHRISTIE, Agent.

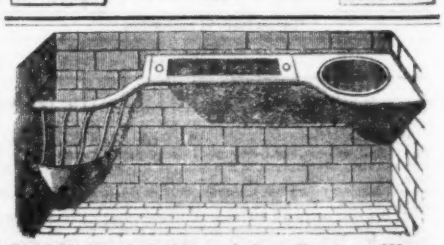
CHAS. WM. WATERLOW,
MANUFACTURER

of Sashes and Frames, and Joiner to the Trade, 121, Bunhill-row, Finsbury-square.—Well-seasoned materials, superior workmanship, lowest prices.—Upwards of 400 DOORS, and a large variety of Sashes and Frames, always on sale. Glazed goods securely packed for the country. Steam-struck Mouldings in any quantity.—N.B. This Establishment is worth the notice of all engaged in building.

NOTICE OF REMOVAL.—JOHNSON and PASK, Sash, Shop Front, and Door Makers to the Trade, beg to inform their Customers and the Public generally, that they are removing to more extensive premises, in BAKER-STREET, BAGNIGGE WELLS-ROAD; and after Michaelmas next, their business will be carried on there; previous to which they intend selling off their present stock of sashes, frames, and doors, at reduced prices.



No. 1, Amwell-street, Clerkenwell.



SAMUEL HOOD and Co., Castings Warehouse, 81, Upper Thames-street. REGISTERED STABLE FITTINGS. Enamelled Mangers, with double hay-racks, or with enamelled water-cistern on one side.

COMPOSITIONS for WRITING with STEEL PENS.—STEPHENS'S WRITING FLUIDS compose the most splendid and durable colours, and the most indelible composition which art can produce; they consist of a BLUE FLUID, changing into an intense black colour. PATENT UNCHANGEABLE BLUE FLUIDS, remaining a deep blue colour. Two sorts are prepared, a light and dark blue. A superior BLACK INK, of the common character, but more fluid. A superior CARMINE RED, for contrast writing. A liquid ROUGE CARMINE, for artists and contrast writing, in glass bottles. A carbonaceous RECORD INK, which writes instantly black, and being proof against any chemical agent, is most valuable in the prevention of frauds. A liquid MECHANICAL and ARCHITECTURAL DRAWING INK, superior to Indian Ink. Marking inks for linen, select steel pens, inkholders.—Prepared by the inventor, HENRY STEPHENS, 54, Stamford-street, Blackfriars, and sold by booksellers and stationers everywhere, in bottles, at 1d., 2d., 3d., 6d., 1s., and 3s.